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The Old Voyager, Age 69

THE COLUMBIA UNVEILED

*Being the story of a trip, alone, in
a rowboat from the source
to the mouth of the*

COLUMBIA RIVER

*Together with a full description of the country
traversed, and the rapids battled*

By an old voyager
and whitewater man

M. J. LORRAINE, C.E.
M. AM. SOC. C.E.

Los Angeles
The TIMES-MIRROR *Press*
1924

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"Where rolls the Oregon, and hears no sound, save
his own dashings."

—Bryant.

Swiftly pitching adown Columbia's mighty steps
I go,
Midst black, forbidding rocks, and waves white-crested and distress'd;
Past beetling cliffs, tree-clad lands and bare, and
mountains white with snow;
Until the goal is reach'd and my wave-toss'd
craft is brought to rest.

—Lorraine.

PREFACE

In submitting the story of my trip down the Columbia River I do not do so as a writer but as a traveler, and in a sense as an explorer. It is a narrative mainly of personal experiences and impressions, and is intended to be instructive rather than merely entertaining. I trust it will in some small measure prove so.

The information presented has largely been obtained from personal observations and contact. Considerable is due to those I met along the way, or to those who put the information in writing; and to whom credit has generally been given in the body of the story. What little is said about the early history of the River has been obtained, and sorted, from various public and private sources. The facts about the different cities and towns have mainly been furnished by the Boards of Trade and Chambers of Commerce of the places; and those about Fort Vancouver were secured from the Commandant of the Fort. I am indebted to the Canadian Pacific Railway Company for the plat of Canal Flat, and the descriptions of the summit tunnels in the Rocky Mountains and the Selkirk Range. Photographs were taken of almost everything of interest along the River, but many of them were failures due to defective films obtained in the small towns along the way; and to the mistiness of the atmosphere after the autumnal rains set in. I was able to obtain some substitute photographs and am indebted for them to Ellis Morigeau, J. P. Forde, and T. W. Saunders.

At the outset of my trip I had no definite intention of writing a description of the Columbia River. The idea was one of growth that developed as I proceeded. I found that to residents of both British Columbia and the United States the location, course, and character of the Columbia and its valley was almost universally veiled in obscurity. The descriptions given by others were incomplete as the writers of them had never traveled its full course as I did. The Columbia is one of the great rivers of North America, and I determined to lift the veil of ignorance that covered it, and make everyone who reads my story acquainted with it in detail from its source to its mouth. Hence the title I have selected.

I was in my sixty-eighth year when the trip was made, and it is admittedly a remarkable one for any lone man to accomplish. In view of this fact, I hereby record my protest against the present unjust, as well as senseless, commercialized system of the world which upholds the theory that men are no longer efficient after forty-five or fifty years of age—an age when many men are at the height of their mental and physical powers. I ask my readers, both young and old, in all fairness, would they classify a man, of any age, in any class but the efficient who is capable of battling successfully the turbulent waters of the Columbia River? I know many men, of fifty and over, forced to be "bystanders" because of the "age limit," who will join me in my protest against its injustice. Men should not be judged by their age, but by their capacity.

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FOREWORD

During the twelve years in which I have been a resident of the Windermere District of British Columbia, where rises the "River of the West," the mighty Columbia, it has ever been one of my chief delights to paddle my canoe on its waters and to theorize and to dream and to wish that I had the power, the strength, and the time to paddle leisurely down the River to the sea. Years have crept by and the hope has gone from me as one which can not be realized.

All the literature regarding the River, which has come my way I have read and re-read until the River with its myths, its history, and its lore has become part of my life. The names of the more important voyageurs, traders, explorers, and surveyors who have been over its waters, or traversed its banks, are familiar to me together with their experiences and of these, as far as I have learned, the only person who covered the full length from source to mouth by water was that intrepid voyageur, explorer, astronomer, and surveyor of the Northwest Company, of Canada, David Thompson, who discovered its source in 1807 and completed its navigation in 1811. Not until 1921 when M. J. Lorraine, a civil engineer, broke the record has anyone else done this. Others have traversed the River in part, and in various crafts, but as far as my knowledge goes, not excepting David Thompson, Mr. Lorraine is the first and only one who has made the continuous journey in the one craft. His experiences and his impressions of the River and the country traversed are recorded in the story of the trip he made.

I can recall the time I first met Mr. Lorraine, and the manner in which he impressed me. He came to my home as a complete stranger, a man well-built, stocky, muscular, alert, and active. Though long past middle age every action betokened experience and self-reliance, and he was every inch an outdoor man. Although well aware of the many treacherous rapids that encumber the course of the Columbia he was fully determined to brave their dangers and make the trip to Astoria alone. Then, there was the staunch little craft, the COLUMBIA, which he had designed and had fashioned with his own hands. To watch him handle her was a pleasure. It was with feelings of sorrow and regret that I shook his hand and wished him *bon voyage* at Athalmer in the morning of Sunday, the 19th day of June, as he re-started on his long, difficult and dangerous journey to the sea. I appreciated the hazards of the rapids, and it was with much relief that I learned of his safe arrival at his destination.

Mr. Lorraine's unique feat was remarkable for a lone man to accomplish, and shows what can be done when backed by experience and determination. Up to the present time the annals of the Columbia River record nothing of a similar nature that equals it.

The narrative he has penned of the trip and the descriptions relative to the Columbia should be instructive as well as interesting to students and lovers of adventure. BASIL G. HAMILTON.

Kootenai Lodge, Invermere, B. C., October 27, 1922.

THE COLUMBIA UNVEILED

CHAPTER I

INTRODUCTORY

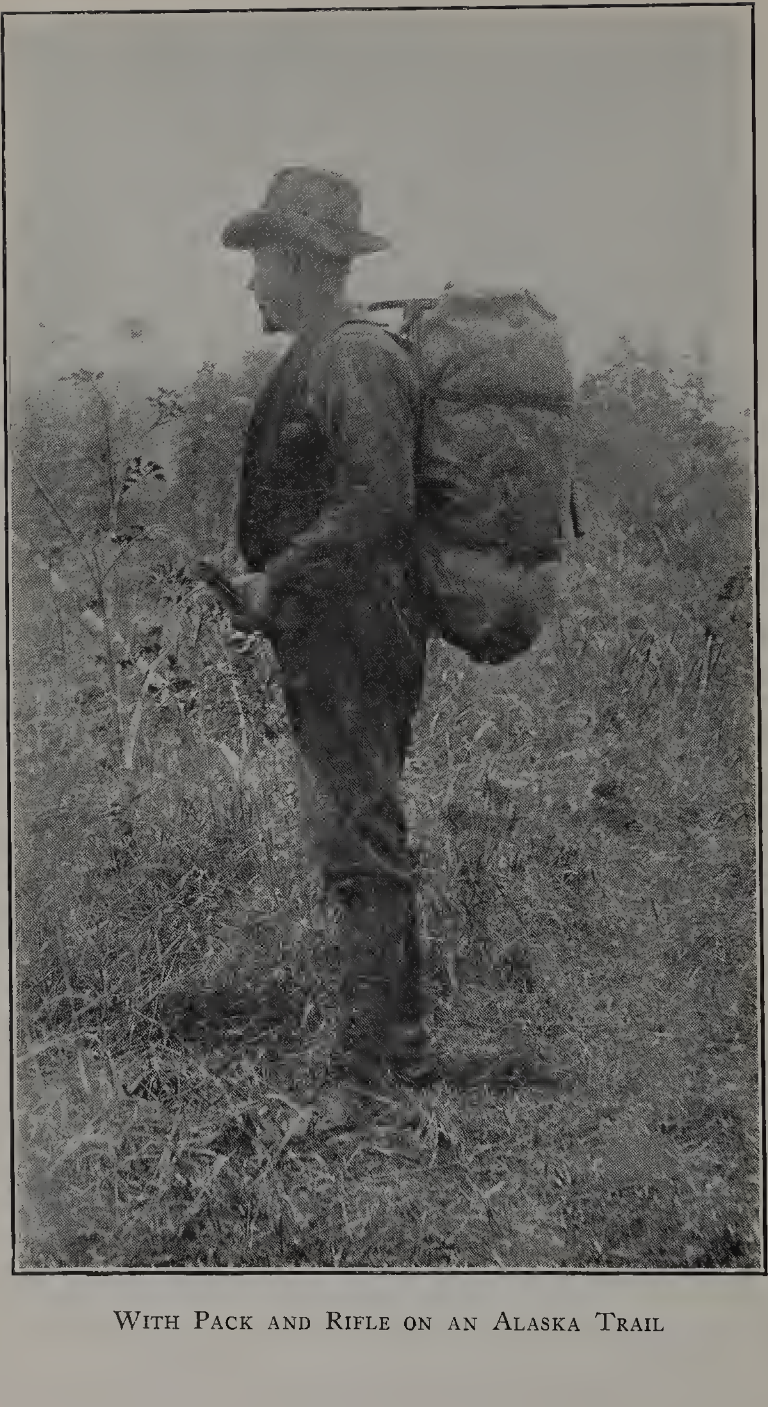
On my 67th birthday, while employed as an engineer on the survey of the proposed Pacoima Dam, near the City of Los Angeles, California, the idea came to me to make a trip down the waters of the Columbia River from its source in the mountains to its termination in the sea. Where the thought emanated from I am unable to definitely determine. Possibly from something someone may have said about the Columbia; possibly something I had read; or more likely because one of the engineers in the party owned a ranch on that river to which he occasionally talked of retiring when through with engineering. This, no doubt, together with past experience in navigating other streams, sub-consciously, made an impression on my mind which brought on a desire to "tackle" the Columbia; and the desire finally resolved itself into a determination. Our engineering work was near completion, and the camp soon to be broken up—the end was in sight, and I was getting uneasy to again make a trip "in the open." My wandering life as an engineer had developed in me a *wanderlust* that, at times, demanded to be satisfied, and what more interesting than a trip down the mighty Columbia from its headwaters?

I had always been interested in the Columbia River, due mainly to the fact that one of my ancestors, Samuel Brown, was one of the six Boston merchants who outfitted the expedition that discovered the mouth of the River.

I had had much experience with life out-of-doors. As an engineer I had roughed it on the plains of Nebraska, Kansas and Colorado; in the mountains of Montana, Wyoming, Colorado, Arizona, and California; and on the table-lands of New Mexico and Mexico. When a youth on the survey of the southern boundary line of Wyoming Territory I had carried a chain 368 miles directly west across the Rocky Mountains. I was born and raised on a stream down which it was but four miles to the Mississippi River; had always owned, or had the use of a rowboat which I learned to handle as soon as big enough to use the oars; and spent much time hunting, fishing, and camping on that great stream. When still a young man, together with a friend, each of us in our own double-ended, clinker-built skiff, descended the Mississippi, starting from Galena, Illinois, and finishing our journey at Osceola, Arkansas, a thousand miles down river. We began our journey in the fall, keeping just ahead of the ice, and hunted, fished, and trapped all the way, selling our furs at St. Louis, Missouri, and game at the different towns as we passed. In the spring, disposing of one boat, we placed the other on board a steamer and went with it up-river to St. Louis. The down-river boats did not run above St. Louis, and the "Diamond Jo Line," stern wheelers, were the only ones operating north of that city, and as the ice was still running strong they were not yet on their run. Not wishing to wait we launched our skiff below the Eads bridge and started towards home, expecting that a steamboat would overhaul us in a few days and we would board her. In this we were mistaken. Taking advantage of the eddies we averaged thirty miles a day, up stream; and the next day after arriving home learned that the first Diamond Jo boat had just reached Dubuque, Iowa, sixteen miles from Galena. We had beaten her by one day. We were seven months on the trip having a varied experience, encountering many serious windstorms, and getting caught in ice jams that formed overnight.

After the above experience I spent many years between the Mississippi River and the Pacific Ocean, locating and constructing railway lines, roughing it, living in a camp most of the time—doing pioneer work. In 1903, while engaged in making a location survey on the North Fork, Feather River, California, for the Western Pacific Railway, I had my first experience in boat-building, constructing a rough skiff for carrying my party of engineers across the river, to and from their work.

In 1914, I went to Alaska and British Columbia with a partner on a mining venture on the Unuk River and there learned how to carry a load on my back with pack-strap and pack-board. I carried a sixty-pound pack and a nine-pound Winchester rifle for 160 miles over mountains, across streams and windfalls, and through almost impenetrable blueberry bushes and devil-clubs, sleeping where night



WITH PACK AND RIFLE ON AN ALASKA TRAIL

overtook me, with no other shelter but the foliage of a spruce or hemlock tree.

In 1915, I was again on the Unuk River—this time with two partners. We constructed a rowboat at Ketchikan, Alaska, and in her rowed seventy miles across salt water to the mouth of the Unuk. The Unuk River has a current of about seven miles an hour and we ascended it by lining up stream. Twenty-four miles above the river's mouth is an impassable cañon. Here we made a portage carrying our outfit five miles around the cañon; then we whip-sawed lumber from spruce trees, felled in the forest, and built two twenty-five foot boats—a party of three other men having joined us in the meantime. In these heavy, green boats we continued up the Unuk to a point fifty miles above its mouth, and from there returned, in the same boats, to the head of the cañon. Here three members of the party decided to run the cañon with one boat, believing it passable down stream if it was not up. The plan was to run the second boat through if the first trip was successful. It proved a serious undertaking—they reached the lower end of the cañon, barely escaping with their lives. Their boat filled with water in a great breaker and only a timely sand bar, on which they were able to make a landing enabled them to beach her before she sank. Their bedding and provisions were saturated with water, and much of the latter had to be dumped overboard. They reported no amount of money would induce them to make a second trip—the place was worse than White Horse Rapids on the Yukon. Leaving the second boat at the head of the cañon, her load was carried across to the foot, where the original boats had been left, we re-loaded and rowed back to Ketchikan, my party using the boat constructed in the forest and leaving our original boat behind. On this trip we carried tents with us and made comfortable camps each night.

I returned to the Unuk River in 1916, taking a man named Wells along with me from San Francisco. On this trip I purchased lumber at Ketchikan and had it conveyed, in a gasoline launch, to the mouth of the Unuk where I constructed, alone (Wells knew nothing of boat building), a 19-foot, double-ended rowboat. My companion proved to be afraid of the river but said nothing until the boat was finished, when he refused to trust himself to the swift current. I had paid his way from California, and in disgust at his defection I started up the river alone. As the Unuk River current is too swift to row against, the only way to ascend it is by lining a boat first along one shore and then along the other, occasionally wading where the water is shallow. I fought my way successfully upstream for twenty miles, to where there is a cañon two miles long, with no rapids but a current too strong for one man to contend with, and the walls on both sides perpendicular. The wall on one side had occasional breaks, but 400 feet of rope was needed to line by the longest cliffs—I had but 100 feet. I spent seven days trying to get through this cañon, but was balked after conquering it for a mile and was compelled to return, ninety miles, to Ketchikan where I engaged a helper and purchased the 400 feet of rope needed for the cañon. With my new companion my destina-

Ascending the Unuk River Alone, and Taking Own Picture tion was reached, fifty miles above the mouth of the Unuk.

In 1919 I went to the Unuk River for the last time. I engaged the services of a man at Ketchikan and we went, by motor boat, to Bell Island a hot-spring resort twenty-four miles below the mouth of the Unuk. Here I had left my boat after coming down the river in 1916. I found that during my absence the boat had become badly damaged. Anticipating this I had brought lumber with me, and with this practically rebuilt the boat, and then gave her, throughout, a fresh coat of paint. The two of us then rowed across salt water to the mouth of the Unuk, lined up it, and using the boat left at the head of the impassable cañon in 1915 reached my objective point. After arriving at the place my helper expressed a desire to return to get work in a fish cannery—as the salmon run was just starting. This was feasible for in 1915 we had left a boat at the mouth of the impassable cañon and it was still in good condition, and by walking back fifteen miles through the timber he could get to it. He left me and reached Bell Island in safety, while I remained alone for two months on the upper Unuk River. The Unuk River heads in British Columbia, but flowing westward crosses the International Boundary and empties into United States waters at Behm Canal. It is considered one of the most dangerous streams of the North because of its swift current and the many "sweepers" that line its banks, and which will swamp a boat instantly if carried into them. Only experienced rivermen navigate it, either up or down.

In view of the foregoing experiences I felt fully qualified and able, both as a riverman and boat builder, to undertake the trip down the Columbia River, and decided to make it, and do it alone, as that would add something to my credit, if successful; and, besides, some of my partners, heretofore, had not made good but failed me at critical times. I knew I could rely on myself. The dire predictions of possible disaster did not affect me.

CHAPTER II

INVESTIGATIONS, PREPARATIONS, AND ARRIVAL AT THE COLUMBIA RIVER'S SOURCE

Having definitely determined to undertake the navigation of the Columbia River from its extreme headwaters to its union with the Pacific Ocean, and having sufficient confidence in myself, from past experience, to venture the undertaking alone, the next thing was to ascertain, for a certainty, if the River was navigable for its full length, and if not, how much was, and to find out if a canoe or rowboat was a sufficiently staunch water-craft to battle the many rapids that I knew would have to be contended with.

I confess to considerable ignorance in regard to the Columbia. In 1890-1892, while employed as an engineer on the construction of the Great Northern Railway, I was on the Kootenay River, in Montana, forty-five miles below the Canadian line, and knew that stream joined the Columbia somewhere to the west, but that the source of the greater river was so near I was not aware. I knew about the Pend d'Oreille River, the Spokane, Snake, and Walla Walla, all tributaries of the Columbia. I had heard a great deal about the Great Bend country; and read an account of the Lewis and Clark expedition; knew of the founding of Astoria by John Jacob Astor; had crossed the River several times at Vancouver, Washington; and, of course, had heard of the Dalles, and that there were many rapids and water-falls, just where I did not know. I also knew that its source was in Canada, but had the impression that its identity began at the mouth of the Canoe River and that that stream was its real source. As my inquiries were pursued I found that most people were more ignorant than I was. Some persons told me it headed in Idaho, others insisted that its starting place was in Montana. I also found that those who were acquainted with its lower section knew little, or nothing, about the upper part, while those familiar with the upper end were likewise ignorant about the lower one.

To gain enlightenment I studied what maps were available embracing the whole River. These were so illy defined that they did not disabuse my mind of the belief that the real Columbia began at Canoe River. I obtained the United States Geological sheets covering as much of the Columbia as had been surveyed and platted; but these did not include sections at the River's mouth, at the Dalles, and about 200 miles from the Canadian line, southward. The maps were clear in regard to streams and topography, but many rapids were missing and those shown were only indicated by their position and approximate length, with no intimation of their character.

I wrote many letters to various sources, seeking enlightenment. Most of the replies were discouraging. I give extracts from two of them:

> "Navigation of the Columbia River below Donald is impossible. That part to Revelstoke is known as the Big Bend; where the river changes from a northerly to a southerly direction, there is a difference of level of

> about 1,000 feet and is taken up by a number of rapids and low falls and complicated by large rocks; free navigation for small boats, except for the experienced man who knows the waters, does not commence in B. C. at all. I only know one old river captain of the present day who knows the waters thoroughly and he never makes it by the Columbia but runs up the Columbia from Golden and down the Kootenay, thence via Kootenay Lake with various portages to the Columbia River; and thence down that stream. Except for stretches of about 100 miles there are no navigable streams in B. C., as this country is practically a land of mountains with rivers winding and falling through numerous cañons."

Another writer says, in part:

> "If you desire to go beyond Golden and around the Big Bend and so on to Astoria you would want something heavier than a Peterborough canoe, or something of its class, and a guide as well."

These letters were not very cheering, and besides did not give me such definite facts in regard to the various rapids in British Columbia as I was seeking, and where I knew the most dangerous ones were. However, a communication soon came from the Commission of Conservation of The Dominion of Canada, together with a bulky, illustrated volume on water conservation, accompanied by a good map of British Columbia. These gave me much of value, showing me that the Columbia, instead of starting at the mouth of Canoe River, did so at a place near the head of Columbia Lake 232 miles to the southward. They also told me something about the rapids on the west side of the Big Bend—that they were dangerous but had been frequently navigated.

Still I had no reliable facts about the rapids on the east side of the Big Bend until the following letter was received:

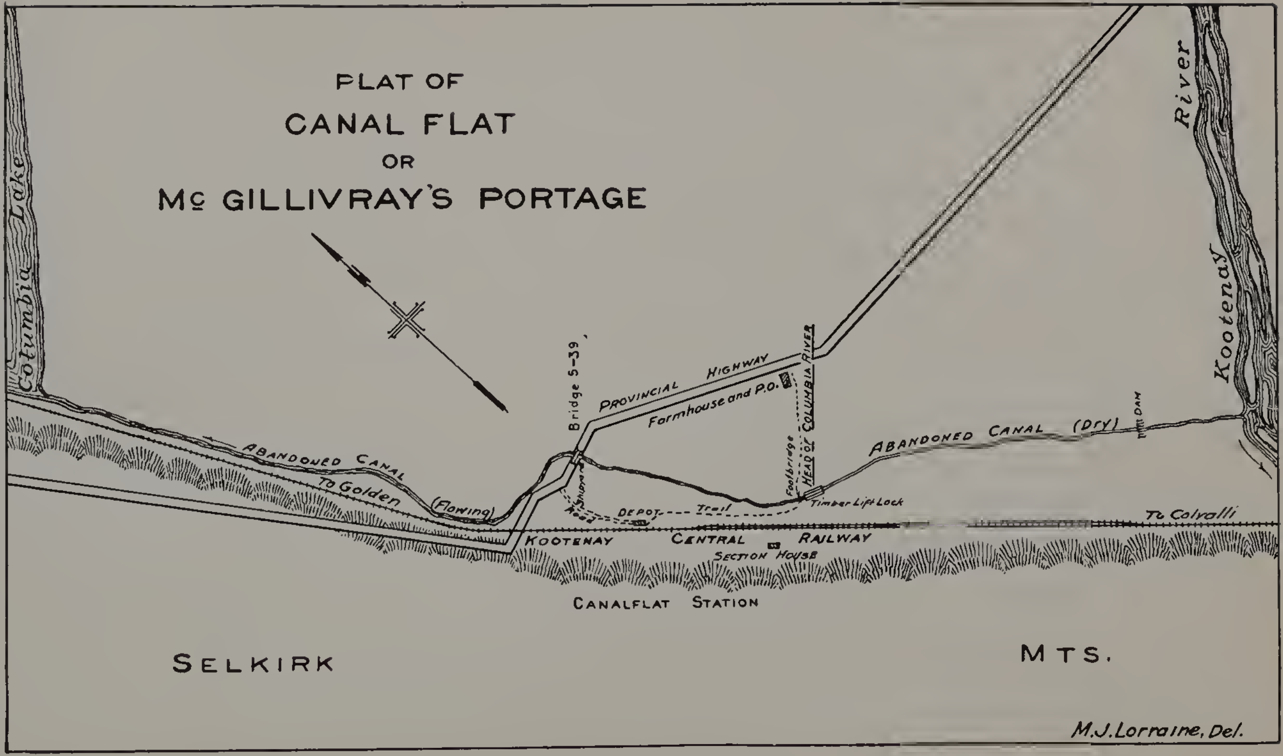
> "Starting from Golden the river is navigable for a canoe or batteau, past Donald to Kitchen Rapids, which are short and can be lined down. Then it is all right again for quite a distance, past Bush River, then Surprise Rapids, which can be lined down except in June and July, when you will have to portage. Then a short distance to Kinbasket Lake. From the north end of Kinbasket Lake to Wood River, there are quite a few rapids, which can all be lined down. This last portion between the lake and Wood River takes on an average two days, by running the rapids three hours.
>
> "If you require any other information I can give you, you are welcome to it.
>
> Yours truly,
> W. WENMAN."

Wood River joins the Columbia at the mouth of Canoe River—the head of the Big Bend, and Mr. Wenman's letter was the kind of information I wanted; and together with the other facts gleaned convinced me that the Columbia had been navigated for its full length, and settled all doubts—for I knew that what others had done I could do.

The question of the navigability of the Columbia having been settled the next thing necessary was to get an outfit together for the proposed trip. I had my little Alaska tent 7′x7′ square with 3-foot walls. It was of light canvas with paraffined top to keep out rain, and weighed 11 pounds. My old Alaska sleeping bag was still usable and with the tarpaulin to protect it from moisture and dirt weighed 11 pounds. For tools for boat-building, I collected a small crossing-saw, hammer, wood chisel, screwdriver, small, adjustable square, and a spokeshave. On account of weight a plane was omitted, as I trusted to be able to borrow, or rent one when needed—and, anyway, in a pinch a spokeshave is a good substitute for a plane. My folding Corona typewriter, 3A Kodak, rubber boots, heavily hobnailed laced boots, tennis shoes to wear when running rapids, rough outer clothing and a change of underwear packed in a serviceable hogskin bound telescope made a part of the outfit. In addition were fishing tackle (without poles), a 12-gauge shotgun, a 45-calibre Springfield carbine, and ammunition for both guns. The whole outfit, exclusive of guns and ammunition weighed less than 100 pounds.

On the afternoon of May 23, 1921, I left Los Angeles, and boarding the steamer Yale, at Wilmington, arrived at San Francisco the next morning. There was a seaman's strike on and I was compelled to continue my journey by rail, by way of Portland, Oregon, to Spokane. Here I stayed over night and transferring to the Spokane International Railway crossed the Canadian line at Kingsgate and reached Cranbrook, British Columbia. Cranbrook is on the Crow's Nest Pass line of the Canadian Pacific Railway, while my destination, Canal Flat station, is on the Kootenay Central Railway, 91.7 miles farther north. The Kootenay Central trains operate over both lines from Cranbrook to Golden on the main line of the Canadian Pacific, leaving the Crow's Nest Pass line at Colvalli 27.7 miles east of Cranbrook; but as they are what are called two-a-week trains I would be compelled to lay over at Cranbrook three days for the next train. Having this time on my hands it seemed a wise thing to do to make my purchases of lumber and supplies at Cranbrook and pay freight charges to Canal Flat. I scoured the town over for suitable lumber with which to construct a boat of the type I had decided to use but could find none; but learned, incidentally, that there was a large sawmill, planer, and good general store at the village of Wardner 21.9 miles nearer my destination. The Crow's Nest Pass trains run daily, and remaining but one night at Cranbrook I proceeded to Wardner, arriving there on the afternoon of May 27, and immediately put in an order for lumber, provisions, nails, paint, rowlocks for the boat, and all necessary cooking and eating utensils and tools, together with a double-bitted axe, everything to be ready to be shipped north on the Kootenay Central on the morning of May 30. The order was filled and shipped on time and my outfit and I reached Canal Flat at 6 o'clock P. M., May 30.

Canal Flat station, located on the flat at the foot of the Selkirk Range, consists of a sidetrack, an old box-car used as a depot, and another old box-car used as a section-house. The only other building is Hardwick Grainger's ranch house—which is also the post office—about a quarter mile east of the station. Both the box-cars are demounted from their running gear; and the one used as a depot faces on a graveled walk and is east of the railroad track. The depot is divided into two sections by a partition. In the larger section is an old heating stove, and a counter stretches across its south end. In the



PLAT OF
CANAL FLAT
OR
M^c GILLIVRAY'S PORTAGE

north, and smaller end, is a rude board bunk without a mattress. Other furnishings, there are none. I decided to make the depot a habitation, using the bunk as a bed and making its boards as soft as possible by spreading all my spare clothing and tent over them and under my sleeping-bag. When traveling by water I usually take with me a light sheet-iron stove, but as there were none to be had at Wardner, and until one could be obtained somewhere below on the Columbia River I would be compelled to cook my meals over a camp fire. The stove in the depot was useless for cooking purposes, so starting a fire outside, and using the most readily prepared eatables among my supplies I was getting supper ready when a tramp appeared—plainly a decent workingman. I shared the supper with him, after which—as he had no blankets—he went to the section-house where he thought he could find a place to sleep. I saw him no more. After he had gone I started a mixing of sour-dough, made my bed and crawled into my sleeping-bag well satisfied with my trip thus far.

CHAPTER III

BOAT BUILDING AND HAPPENINGS AT CANAL FLAT

On the following day, May 31, I began the construction of a boat to carry me on my river journey. The lumber bought at Wardner had a length of but 18 feet, and as 20 feet was the shortest lumber I had heretofore used in boat-building it was necessary to prepare a new design to obtain the proper dimensions and lines. This I did by constructing a small model, to scale, representing half the boat longitudinally. An inch board, shaped as wanted, served as a bottom. Small pieces answered for stern and bow posts, and for a rib at the middle. Around these I bent heavy cardboard representing a side. From this model I scaled all measurements necessary to give the boat the correct proportions and form.

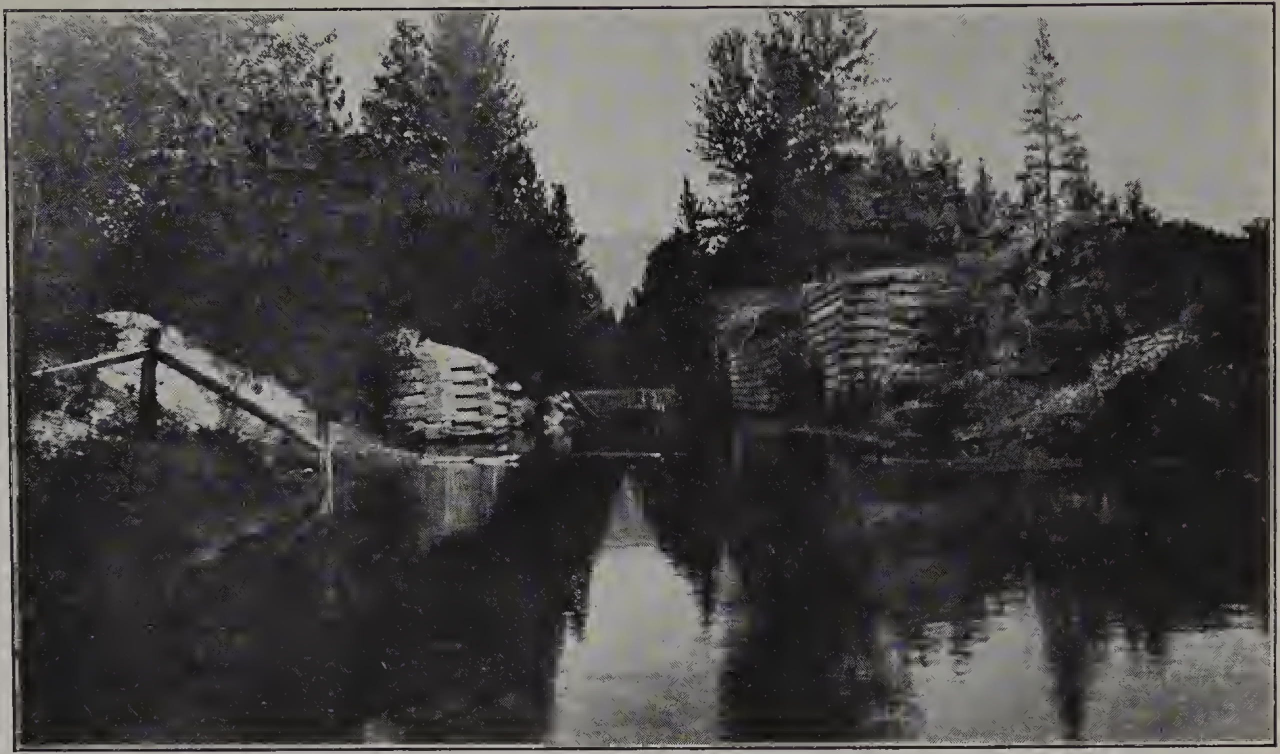
The depot was too small for a work shop, there was no material available with which to make a work-bench, and all cutting had to be done on the gravel walk in front of the box-car. Fortunately Mr. Grainger, the rancher living near by, had a plane that he loaned me. However, it was slow and tedious work doing everything on my knees on the uneven ground.

While thus engaged, on the first day, another tramp appeared from the south, carrying a roll of blankets and a valise. He was, apparently, partly of Jewish extraction. He claimed to be twenty-one years of age, and bragged that he had run away from home, at Vancouver, B. C., when sixteen years old, and had never worked for a "boss" in his life. He admitted that he was a bootlegger, had been arrested at Cranbrook, and been ordered out of the town. He stayed with me two days, sleeping in the larger section of the depot and eating my "grub." On the third day he jumped the freight train going north. After he had gone I missed a pair of new sheepskin gloves that had never been worn. He was evidently a "bad egg."

During my stay at Canal Flat three other tramps appeared. The first was a large, raw-boned, powerful, middle-aged man, carrying a heavy pack. He was completely exhausted and claimed he could go no further. I gave him supper and breakfast, and he slept out-of-doors in his blankets and in the morning departed for the south. The next to come was a little dried-up Hungarian. He had an old black pipe constantly in his mouth. He too had supper and breakfast and slept outside, leaving for the north in the morning. The last was a Russian with a roll of blankets. His name was Brede. I called him the "Spitter," as he seemed unable to complete a sentence without going through the motions of spitting. He had been working in the logging camps, and was an honest, hardworking, reliable man. He remained with me for the balance of my stay, partaking of my meals, and sleeping in the depot on some sacks of grain that had recently arrived. He offered to pay me for his accommodation, but the offer was, of course, declined.

Having finished all the work of "cutting out" the parts for the boat it was then necessary to assemble them. The little stream at Canal Flat is popularly known as the actual head of the Columbia River. The nearest place where there was water deep enough to float a boat was just above highway bridge "5-39," and 1,400 feet below where the stream starts. Here it has a width of about 30 feet, and a depth of about a foot, and there was sufficient flat ground on the west bank for a little "shipyard." Building a couple of small trestles, or horses, on which to do the assembling, I carried all the material over from the depot, and making a "former" to give the right shape and width, in a comparatively short time the boat was nailed together; and after being thoroughly caulked was painted a silver gray, inside and out, and the gunwales painted dark green. The green paint was obtained from Mrs. Grainger, as the clerks at Wardner had sent me the wrong color. They had also sent me the wrong size of nails, and from that I learned that storekeepers in British Columbia know nothing about nails expressed in terms of the "penny," and if you want the right kind of nails in that country you must order them by their length in inches. I found out about the nails in time to have the train conductor get the proper sizes. I have adopted the name COLUMBIA as being the appropriate one for the new-born boat and that name was lettered in dark green on both sides at the bow.

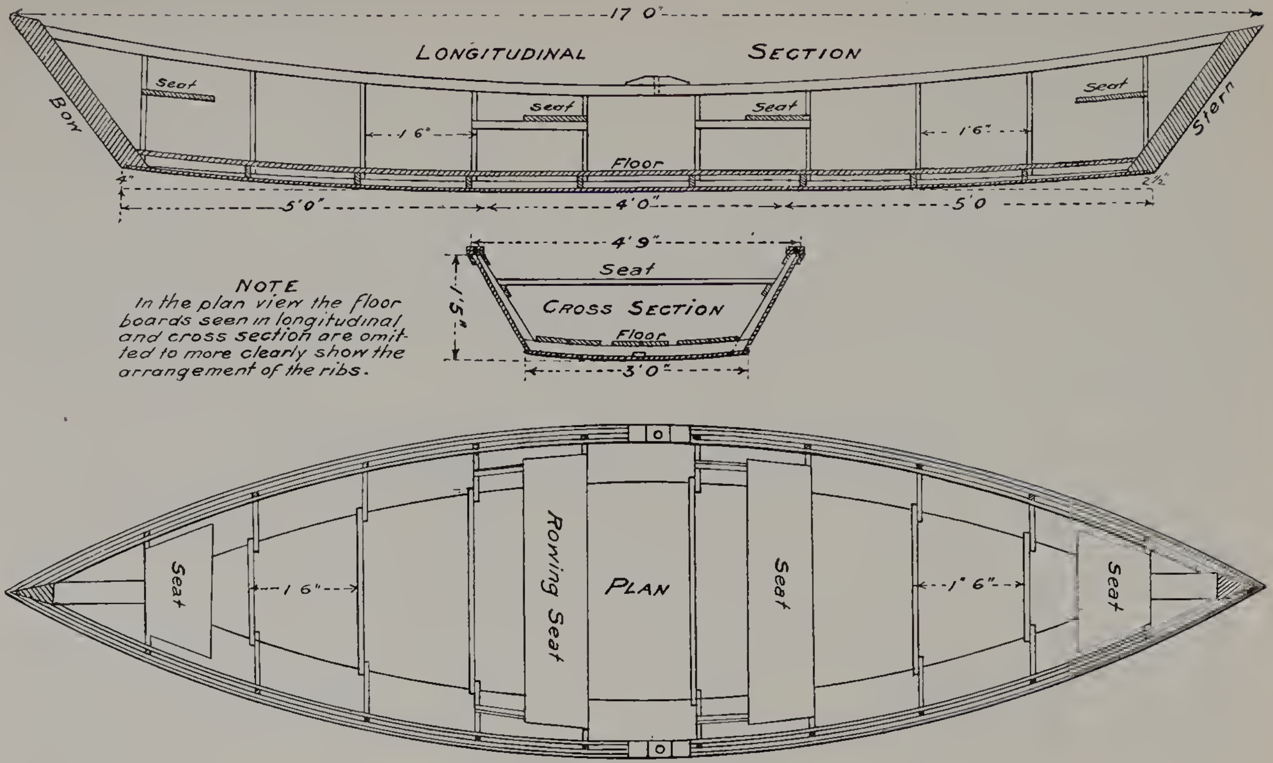
The COLUMBIA was constructed of the best grade of surfaced, pine lumber. Her full length, from stem to stern, was 17′, and bottom length 14′; width of beam 4′ 9″; bottom width at mid-



Old Lift Lock and Actual Head of Columbia River dle 3′ 0″; depth in middle 17″, and at ends 21″. The bottom was curved both longitudinally and transversely; was straight 2′, each way, from the middle, from there curving up 4″ to the bow and 2½″ to the stern. The transverse curve of the bottom had a middle ordinate of 1″. Her sides and bottom were formed of 12″ boards ⅝″ thick, the bottom projecting ½″ beyond the sides to serve as a fender. The bow and stern posts were of 3″ x 4″ stuff. The side ribs were 1″ thick, 2″ wide at the lower end tapering to ¾″ at the upper. The bottom ribs were 1⅛″ thick and 2″ wide. All ribs were spaced 1′ 6″ apart. The longer seats, at the thwarts, were made of boards 1⅛″ thick and 10″ wide. The bow and stern seats were cut from remnants of the bottom boards. Along the sides, inside and out, were placed gunwale strips ½″ thick and 2″ wide; and on these set rowlock blocks 12″ back of the rowing seat. Old ¾″ flooring was used as a false bottom, or floor. When fully completed, and before immersion, the boat weighed about 200 pounds.

I was unable to get oars at Wardner but obtained instead a stick of clear spruce 4″ x 6″ thick and 16′ long, and from this formed a pair of 8-foot oars. For this work the axe and spokeshave were the handy tools, but it took me almost two days' time to bring the oars to shapely dimensions. They were then painted a dark green.

Due to lack of facilities, and also of some tools, ten days' time was consumed in building the COLUMBIA and making oars. Prior to this, with conveniences such as a roomy shop, work bench,



NOTE
In the plan view the floor boards seen in longitudinal and cross section are omitted to more clearly show the arrangement of the ribs.

Design of Rowboat Columbia

with vice, etc., and all needful tools I had cut out and assembled a boat, including painting, and everything except making oars, in three days' time. However, the drawings and photographs here given of the COLUMBIA show that I made a good job; and she proved the most reliable boat, for rough water, that I ever handled. She was of the dory type, a type of boat noted for its remarkable qualities in safely riding waves and breakers.

The Rowboat Columbia Before Launching

CHAPTER IV

The Origin and Meanderings of the Columbia River

Our boat-building activities being at an end, and now having some leisure, it behooves us (I assume that the reader will now, if he has not already, join me in spirit if he cannot in person), to take time to look at our surroundings, size up the country we are in, and prime ourselves with all the information we can about the Columbia River, its early history and discovery, and where it goes on its meandering to the sea.

The Columbia River has an humble origin. No glacial stream, tumbling mountain brook, or great lake gives it birth. Immediately below the walls of a decayed, timber lift-lock, water, in the form of springs bubbling out of the gravel bed of a former canal usher it into existence. Due to what remains of the canal trench it is here about twenty feet wide, but so shallow that an ordinary plank laid on its bottom, just below the lock, serves as a foot bridge to reach Mr. Grainger's ranch house nearby. The elevation above sea-level, according to a bench mark near the railway depot, is 2,619 feet. The ground surface here is flat but high enough above the stream to be dry, and it is heavily covered with spruce, and pine timber, with alders, willows, and cottonwoods near the canal bed. The depot at the railway station is close to the base of the Selkirks, and is 1,100 feet from the canal lock. The Stanford Range, a spur of the Rocky Mountains, is about a mile and a half to the northeast across the flat. About three-quarters of a mile to the southeast flows the Kootenay River, an almost imperceptible divide separating it from Columbia Lake, a mile and a half to the northwest. This low-lying strip of land is usually called Canal Flats, but why the plural designation I do not know as there is but one flat. The railway station is 79.4 miles due north from the International Boundary between the United States and Canada; and its latitude is 50° 09′ north of the Equator, and longitude 115° 50′ west of Greenwich, England.

The difference in elevation between the Kootenay River and Columbia Lake is from six to nine feet, varying with flood conditions—the Kootenay being the higher. One W. A. Baillie-Grohman conceived the idea of constructing a canal across the flat to relieve flood conditions on the Kootenay below by diverting the water into the Columbia; and also for the purpose of having connected navigation for small steamboats on both streams, there being no railroads then operating as they do now in that section.

Grohman was given a concession by the Province of British Columbia which he afterwards transferred to the Kootenay Syndicate, of London, England. By this agreement the Syndicate was to build a canal no narrower than thirty feet at water level, with a depth of not less than four feet, and to be provided with one or more suitable locks constructed of stone or timber, the canal to connect the waters of the Upper Kootenay River with Upper Columbia Lake. In consideration of this the Syndicate was to receive free grants of 320 acres of land for each $2,500 expended for the actual construction of the canal. The total land subsidy was to amount to 30,000 acres; and in addition as a settlement and reclamation undertaking 45,000 additional acres were reserved for the Syndicate, chiefly in what is now the Creston District.

The canal was completed in the summer of 1888, with an excavated length of about a mile, and with two timber locks each having a length of 125 feet, a width of 35 feet, and a depth of water at the gate of about 12 feet. The locks were only once filled and the work was first destroyed in 1889 but was repaired in 1891. In 1893 a dam was thrown across the head of the canal because of apprehension of dangerous overflow into the Columbia. In 1897, the dam was broken open and the steamboat North Star, commanded by Captain F. P. Armstrong, was passed through the locks with much difficulty, after which the dam was repaired and now obstructs the channel near its head. The North Star is the only steamer that ever navigated the canal. The upper lock has been destroyed, but the decaying log walls of the lower one still remain standing, and below it the canal channel has filled to a shallow stream with a gentle current.

In 1915 the Kootenay Central Railway was completed connecting Golden on the main line of the Canadian Pacific Railway with Colvalli on the Crow's Nest Pass line, a distance of 106.5 miles, and in 1920 a bridge was thrown across the Columbia

River at Brisco. Since then all navigation has been discontinued on the upper Columbia as well as on the Kootenay.

Having established the source of the Columbia River, and noted the character of its surroundings, it will now be well to know just where it goes to reach an outlet.

Leaving the lift-lock at Canal Flat, and following the old canal excavation, it flows in a northwesterly direction three-quarters of a mile to Columbia Lake; thence through Columbia Lake, a connecting channel seven miles long, and Windermere Lake it reaches Athalmer 34 miles from Canal Flat. Debouching from Windermere Lake it continues in a northwesterly direction 161 miles to Kinbasket Lake, through which it passes, and following the northwesterly direction reaches the mouth of Canoe River, 232 miles from Canal Flat. This is the north end of the Selkirk Range and the head of what is known as the Big Bend. At this point the River turns abruptly to the left and flowing in a general direction slightly east of south enters Upper Arrow Lake 127.5 miles from Canoe River. Passing through Upper and Lower Arrow lakes and the Narrows between them for 121 miles 32 miles farther south it crosses the International Boundary Line; having descended about 1,310 feet, and traveled in Canadian territory 512 miles. Thence in United States territory it flows in a southerly direction 111.5 miles to Hawk Creek at the beginning of the "Great Bend"; thence in an extremely tortuous course, slightly north of west, 101 miles to the mouth of Methow River; thence southerly 118.5 miles to the head of Priest Rapids, where the Yakima Range deflects it northeast for about 20 miles to near Wahluke; thence southerly 96 miles to the mouth of the Walla Walla River, where the Great Bend ends. Here the Umatilla Highlands turn the River in a direction slightly south of west for 193 miles, until it has passed through the Cascade Range; when its course alters to a northwesterly direction for 19 miles and it reaches the city of Vancouver, Washington. From thence it flows almost northerly for 33 miles, and then changes to a course slightly north of west for about 113 miles, reaching the Pacific Ocean in latitude 46° 15′ 10″ north of the Equator, and longitude 124° 02′ 27″ west of Greenwich, England. The distance it has come from the Canadian line is 752 miles, and from Canal Flat 1,264 miles; and its descent from its source has been 2,619 feet.

CHAPTER V

EARLY DISCOVERIES, EXPLORATIONS, AND ESTABLISHMENTS

It was long known that a great river existed that had its origin in the Rocky Mountains, flowing westward and emptying into the Pacific Ocean at what was called the Straits of Anian. It was designated as "The River of the West," but was re-named "Oregon" by Captain Jonathan Carver, who, in 1766, attempted to reach it by a trip across the continent from the east, but failed in his undertaking. From this source was derived the name for all that territory west of the Rocky Mountains and north of California, the Territory of Oregon.

The Columbia River became first known to civilization by the discovery of its mouth by Captain Robert Gray. A coterie of Boston merchants, appreciating the value of trading with the Indians of the Northwest Pacific Coast, outfitted two sailing vessels for the purpose, the *Columbia Rediviva* commanded by John Kendrick, and the Washington of which Robert Gray was master. Later the commanders exchanged vessels, and soon thereafter parted company. Kendrick went on an exploration expedition to the north, while Gray continued cruising along the Oregon coast where he was convinced he would find the fabled River of the West. He found what he sought and sailing across the dangerous bar, and through the heavy breakers that guarded the entrance, he safely entered the River and on May 11, 1792, anchored in fresh water ten miles above its mouth. Gray named the river after his vessel, "Columbia," and that name has since been retained.

Gray sailed up the Columbia 35 miles in all, remained ten days, and then departed never to return. But before leaving he took possession of the country in the name of the United States, and as a token of the claim buried some pine tree shillings at the foot of a tree; and thus laid the foundation for the principal, valid right of the United States to the Oregon region, to which it finally obtained definite title by the establishment of the boundary between the United States and Canada, in 184~~2~~6, at latitude 49° 00″ north of the Equator.

In 180~~6~~5 the United States expedition, under the command of Lewis and Clark, crossed the Rocky Mountains at the head of the Missouri River, and descending one of the headwater branches of the Pend d'Oreille River, on the west slope, reached the main stream which they called "Clark River." Finding that this river was taking them too far north they turned away from it to the west and, crossing the Bitter Root Mountains, came to what is now named Clearwater River. They followed the Clearwater to its junction with Snake River where the town of Lewiston, Idaho, now stands. The Snake they called "Lewis River," and descended it to where it enters the Columbia River near the present city of Pasco, Washington. The expedition continued down the Columbia to Lewis and Clark River, which flows into Young's Bay just west of

Astoria, ~~Washington~~ Oregon. The expedition reached the end of its westward journey late in the fall, and after wintering at Lewis and Clark River returned east in 180~~7~~6.

Up to this time the lower part of the Columbia River was all that was known to civilized people, and no white settlements had been founded anywhere along its course. But now appears a man who finds its source, traces it to the sea, and surveys its full length. This was David Thompson, an astronomer and surveyor in the employ of the Northwest Company, a trading company of the colony of Quebec.

Early in 1807, accompanied by four helpers, Thompson left Rocky Mountain House, his company's post on the Saskatchewan River east of the Rocky Mountains, and crossing the continental divide at Howse's Pass came to Blaeberry River, a stream flowing westward. Following the Blaeberry to its mouth on June 30th, he reached a large river whose descent was to the north—it was the Columbia, but Thompson not realizing it called it the "Kootanae." At this point, which is 130 miles below Canal Flat, he built canoes and with them ascended southward, until on July 18th, he reached the lower end of Windermere Lake. Here, on the point that juts southward into the lake at what is called Taynton's Bay, he erected a fort. The location of the fort proved inconvenient and unsatisfactory and, remaining there but a few days, on July 29 he moved to near the mouth of what he called Nelson's Rivulet, now known as Toby Creek, which enters the Columbia from the Selkirks, about a mile below Athalmer, and here built a permanent fort to which he gave the name of "Kootanae House," the remains of which can still be seen just east of the wagon road between Athalmer and Wilmer. Here he remained until the spring of 1808 when he journeyed southward across Lakes Windermere and Columbia to the flat at the head of the latter, which we now know as Canal Flat, reaching it April 21, 1808, the earliest date a white man is known to have viewed the head of the Columbia River. He portaged the mile and a half across the flat to the Kootenay River, which he called "McGillivray's River," naming the portaging place "McGillivray's Portage"; and then canoed down the Kootenay about 240 miles to near where Bonners Ferry, Idaho, now stands. Here he terminated his southward journey and returned northward to Kootanae House.

Ceasing his explorations of the Columbia for the time being, in the interim, Thompson made several trips across the Rocky Mountains by way of Howse's Pass, and also went down the Kootenay to the point he had reached before, and from thence overland to the Pend d'Oreille and Spokane rivers, where he established three trading posts. It was not until 1811 that he resumed his exploration of the Columbia River.

Having had trouble with the Indians at Howse's Pass, this time, in the depth of winter, he crossed the Rocky Mountains, from the east, at Athabasca Pass, which is, in a direct line, about 80 miles northwest of Howse's Pass. On December 29, 1810, he had started out with twelve men and several horses but before reaching the Pass sent five men and the horses back; and with the remaining seven men traveled up Whirlpool River and across the divide reaching a stream flowing westward. This is now known as Wood River but was called by Thompson "Flatheart" on account of the disheartened condition his men were in due to the hardships they had encountered. Following down the Flatheart the party turned to the south when it came within about a mile of the Columbia, which they ascended about twelve miles, when the men mutinied and the outfit turned back down to Canoe River, which coming from the north empties into the Columbia just below the mouth of Wood River. He reached Canoe River, January 18, 1811, and putting up a cabin he and three of his party wintered there, the other four having deserted and returned eastward by the way they had come. This winter camp became afterwards celebrated as Boat Encampment and was the regular stopping place of the later voyagers traveling by way of the Columbia River, Wood River, and Athabasca Pass.

As spring approached, Thompson and his men constructed a clinker-built canoe of split cedar boards, which was 25 feet long and 42 inches wide. Having no nails the boards were sewed together with the split roots of the pine. On April 17th, the party started up the Columbia and on the way picked up an Indian who was an experienced canoe man. By this time Thompson realized that the river he was on was the Columbia and flowed toward the ocean from Canoe River, but considering navigation too dangerous that way, or else wishing to visit first his different trading posts, decided on the upstream and Kootenay River route, knowing that he could reach the Columbia at Kettle Falls. He had 197 miles to go to reach Kootanae House, and 232 miles to reach McGillivray's Portage, and with many bad rapids to ascend; but the low stage of water in the winter, the snow on which to make portages, and in places the frozen surface of the River helped him out, and on May 14th he arrived at the Portage. Carrying across here he ran down the Kootenay River to his usual point of departure, and after visiting his posts on the Pend d'Oreille and Spokane Rivers, proceeded to Kettle Falls, on the Columbia, where he built a canoe in which to descend the River. He left Kettle Falls, July 3rd, with five white men and four Indians, successfully negotiating the various rapids to the mouth of Snake River, where he took possession of the country in the name of Great Britain with the following notice written on a piece of paper which was tied to the top of a tall pole set in the ground:

> Know hereby, that this country is claimed by Great Britain as part of its Territories, and that the N. W. Company of Merchants of Canada, finding the Factory for this people insufficient for them, do hereby intend to erect a Factory at this Place for the Commerce of the Country around—D. Thompson.

Leaving Snake River Thompson continued down the Columbia, passing safely through the several rapids, and portaging the Grand Dalles and Cascades he reached the site of Astoria, July 15, 1811, but found he had been anticipated, and a post already was established there by John Jacob Astor, of New York City, who had sent an expedition around Cape Horn on the sailing vessel Tonquin, under command of Captain Jonathan Thorn, which had reached the Columbia, April 12th, and taken possession in the name of the Pacific Fur Company. Their arrival antedated Thompson's by ninety-five days. Thompson described his advent at Astoria as follows:

> "On July 15th, near noon, we arrived at Tongue Point, which at right angles stretches its steep, rocky shores across the river for a full half mile, and brought us in full view of the Pacific Ocean. The waves were too high for us to double the point; we went close to the River bank, where there is a narrow isthmus, one of a hundred yards, and carried across it; from thence near two miles to the fur trading post of Mr. J. J. Astor, of the City of New York, which was four low huts, the far famed Fort Astoria of the United States. They had been here for a few months, and arriving after a long voyage around Cape Horn, in the rainy season, without sufficient shelter from tents had suffered from ague and low fever, from which most of them had recovered."

Compared with the foregoing it will be interesting to note the impression Thompson's arrival made upon the members of Astor's party. Alexander Ross, who was present at the time, has this to say:

> "On the 15th of July we were rather surprised at the unexpected arrival of a northwest proprietor at Astoria. Mr. Thompson, northwest like, came dashing down the Columbia in a light canoe manned by eight Iroquois and an interpreter, chiefly from the vicinity of Montreal."

Gabriel Franchere, who was also present, gives this version of the occasion:

> "Toward midday we saw a large canoe with a flag displayed from her stern, rounding the point which is

> called Tongue Point. The flag she bore was the British and her crew was composed of eight Canadian boatmen, or voyagers; a well dressed man, who appeared to be the commander, was the first to leap ashore."

It is claimed by some Canadians that the purpose Thompson had in posting his notice at the mouth of Snake River was to claim the territory north of the Snake, only, as the Lewis and Clark exploration, and Gray's discovery of the Columbia's mouth, debarred Great Britain from any right below Snake River; and Thompson's continuation of his journey to Astoria was solely one of exploration and to complete his survey of the River to the Pacific Ocean. Be this as it may, but the Canadians secured, in course of time, absolute control of the whole Columbia River territory and ousted Astor from his possessions at the mouth of the River. In 1812 war was declared between Great Britain and the United States, and Duncan McDougall, a British subject, who was in charge of the Pacific Fur Company's interests at Astoria, on October 20, 1813, disposed of all that company's property to the Northwest Company. Ten days later the British man-of-war Raccoon, commanded by Captain Black, appeared before the fort, took possession, and changed the name of the place to Fort George. On October 6, 1818, Astoria was restored to Astor, re-assumed its name, and nominal control was given to the United States, but the Canadians continued in actual control about twenty-four years longer, establishing their local headquarters at Fort Vancouver, now Vancouver, Washington. In 1821, the Northwest Company consolidated with the Hudson Bay Company under the latter name, and it was not until the final adjustment of the International Boundary between the United States and Canada, in 184~~1~~6, at 49° 00′ north latitude that the Hudson Bay Company withdrew north of the boundary line.

Thompson remained at Astoria eight days, and on July 23, 1811, accompanied by nine men in three canoes, ascended the Columbia River to the mouth of Snake River, from there going overland, and after visiting his various trading posts, arrived at Kettle Falls. From Kettle Falls he ascended the Columbia River with eight canoe loads of Indians and without mishap lined up the numerous dangerous rapids and reached his old encampment at the mouth of Canoe River, September 12, 1811. He had navigated the entire length of the Columbia River, part of the way by going down stream and the remaining part by going up stream. He had ascended from Canoe River to McGillivray's Portage; descended from Kettle Falls to Astoria; ascended from Astoria to the mouth of Snake River; and ascended from Kettle Falls to Canoe River; thus completing the circuit. He did not make a continuous journey, but is the only man, up to the present time, who has traveled on the bosom of the Columbia River from its birthplace in the mountains to its dissolution in the sea.

Thompson made another round trip between Canoe River and Kettle Falls and then departed to the east by way of Athabaska Pass and never returned to the Columbia River.

Thompson made a complete survey of the Columbia River, as he was accustomed to do of all the rivers that he explored. For this purpose he carried with him a sextant, chronometer, and magnetic compass. His method of making surveys was to establish an astronomical station and definitely determine its location by meridian altitudes of the sun for latitude, and by lunar distances for longitude. With this station as a starting point, as he navigated or followed a stream, each course of it was taken with the compass, and its length, from bend to bend, was estimated either by eye or by the length of time taken to travel the course. He would then establish additional astronomical stations at controlling points, such as sharp bends, prominent tributary streams, or favorable camping grounds, and then mathematically calculating the traverse of what he had run, he would correct, up to the new station, principally the estimated distances of the courses.

Thompson's activities on the Columbia were but a small part of what he did for the Hudson Bay and Northwest companies. For twenty years he had surveyed a great part of the northwest, from the headwaters of the Mississippi River to the Pacific Ocean, and in 1813-1814, on a scale of fifteen miles to the inch, he made a great map covering all the territory he had surveyed. His map was entitled, "Map of the North West Territory of the Province of Canada, 1792-1812." His work proved to be wonderfully accurate considering his unfavorable way of traveling, and the crude instruments (compared with those of today) that he had to work with. More recent and elaborate surveys have proved him to be nowhere in error more than a few minutes of arc; and a comparison of the meanderings of the Columbia River as delineated on his great map with recent maps shows almost every course and bend exactly as he represented them. His map is now in the possession of the Conservation Commission of the Dominion of Canada at Ottawa, Ontario.

After leaving the Columbia River, Thompson continued making surveys in the East almost up to the time of his death, which occurred when he was almost 87 years old. He was the greatest practical surveyor-astronomer the world has produced, and is now about to receive belated recognition. The Canadian Pacific Railway Company and Hudson Bay Company have combined together in the raising of funds to build a complete trading post on Windermere Lake, at Taynton's Bay, where the first Kootanae House was erected. It will be a reconstruction of an early trading post with stockade, a museum of fur trading days, and a memorial to Thompson. It will be the first of its kind to be established in Canada. The work has already been started, and it is expected that it will be completed in time to open with appropriate ceremonies on August 30, 1922.

CHAPTER VI

The Paradox of the Columbia and Kootenay Rivers

We are now pretty well primed, in a general way, with facts in relation to the Columbia River, and about all that remains to be known is the exact nature of the country it penetrates, and of the numerous rapids I must overcome on my voyage down its waters. These things we will learn from time to time, as I reach them. This is the only way to find out the truth, as some of the hearsay evidence is not convincing.

But before leaving Canal Flat, as the Kootenay River is nearby, and we have not yet had time to visit it, it will be well to take a walk, through the timber, the three-fourths of a mile to the head of the abandoned canal. Here we find a full-grown river, almost a half-mile wide, filled with many islands, having a swift current, and sufficient depth of water to float a good-sized steamboat.

Examining the map the Chairman of the Commission of Conservation had sent me, it is learned that the Kootenay and Columbia bear an anomalous relation not paralleled by any other two rivers of the world. While the Columbia rises as we have seen, the Kootenay rises 61 miles farther north, in latitude 51° 02′, 9 miles east of the Columbia at the settlement of Castledale. It has its origin in a small lake in the Brisco Range, a spur of the Rocky

Mountains. On leaving the lake it runs in a southeasterly direction, exactly opposite to, and parallel with the Columbia, until east of the lower end of Columbia Lake where it turns to the southwest and skirting the edge of Canal Flat strikes the base of the Selkirk Mountains. It is then deflected to the southeast, crossing the International Boundary into the state of Montana, U. S. A., where it turns to the southwest, cutting off the northwest corner of Montana and entering the northeast corner of Idaho. Here it turns to the northwest, re-crossing the International Boundary, into Canada, and reaches a great lake called Kootenay Lake. About half way down the lake it breaks out on the west side, and descending in a southwesterly direction debouches into the Columbia River 31 miles north of the International Boundary, and a mile south of the village of Castlegar on the west side of the Columbia.

In the meantime, we know that the Columbia has traveled northward, and then southward, around the Big Bend and in its journey has become the greater stream—although at Canal Flat it was but an infant and the Kootenay a great river. The reason for this is plain. After entering the United States the Kootenay is in a territory of small rainfall, with no great streams feeding it, or glacial sources to draw from until back on Canadian soil; while the Columbia flows through a region of ever increasing rainfall, with many large tributaries pouring a flood of glacial waters into it, especially in the warm season when the glaciers are active.

CHAPTER VII

FROM CANAL FLAT TO ATHALMER

I am now ready to start on my journey on the waters of the Columbia to the sea.

Brede was still with me, and on the morning of June 13, together, we carried my outfit and provisions from the old box-car depot to the little shipyard at the canal. Launching the COLUMBIA for the first time, and finding her seaworthy, we loaded her systematically, with a slight excess of weight in the stern, and getting in I found she drew five inches of water, with the bow cutting the surface about an inch—thus giving a foot of "freeboard." Exclusive of my own weight the load weighed about 500 pounds.

Brede pushed the COLUMBIA off from the shore and, bidding me good luck, started me on my downward journey. I saw Brede again, about two weeks later near Donald, working as a trackman on an extra gang of the Canadian Pacific Railway.

As the Columbia winds towards every point of the compass in seeking a way through the mountains, to avoid confusion of direction in following my travels, I will call the shore on the right, facing down stream, the right hand shore, and the one on the left the left hand one.

Leaving Brede standing on the shore, and gliding under bridge 5-39, moving down with the gentle current I found that the stream did not increase much in width, as it was confined by the canal excavation, but increased considerably in depth due to constant accession from springs. In about three-quarters of a mile Columbia Lake was reached and a broad vista, heretofore partly hidden by the timber unfolded itself to my view. Ahead, on both sides of the valley as far as the eye could reach, was a grand succession of rugged mountain peaks, their sides clothed in evergreen timber and their summits capped with snow and ice. On the right were the Rocky Mountains, on the left the Selkirks. The Rocky Mountains are the higher but the difference is not distinguishable to the eye, and none of the peaks, in either range, are enough higher than the others to materially dominate them—all are equally grand and impressive. This section of the country is well called the "Switzerland of America"; and the view from the head of Columbia Lake was alone worth coming all the way from Los Angeles to see; but I regretted that I would not have the opportunity to visit some of the wonders enclosed within the embrace of the mountains, hidden from view until you reach them.

On entering the lake I found a strong head wind was blowing from the north, and whitecapped waves running high. The lake is 13 miles long and 2.6 miles wide in the widest place, extending across the valley from mountain slope to mountain slope. On the Selkirk side it is bordered with flat benches 300 to 400 feet high, bearing occasional clumps of pine and fir trees. Back of the benches the heavily timbered surface slopes gently to the steep sides of the mountains. On the Rocky Mountain side the timbered mountain slopes reach the shore of the lake. This much I noticed before attempting to navigate the lake. The canal enters it close to the left hand shore, and the right hand one seeming the most favorable for navigation in the strong wind that prevailed I pulled towards that shore. It was difficult to make progress, but after a steady fight of over an hour the lake was crossed and I landed in the shelter of some willows in the water's edge below the pine timber. Here I decided to stay to await calmer weather and if necessary camp for the night. It was noon when I arrived at the place but by two o'clock in the afternoon the wind instead of subsiding veered to the south, and as it was in my favor, although still blowing strong and the waves tossing northward, I re-started on my way and by 4:30 P. M. reached the foot of the lake at the head of the channel connecting with Windermere Lake.

Next to the Arrow Lakes, Columbia Lake is the largest body of water the Columbia River passes through, but it presents little of scenic interest. It maintains almost a constant level, but that is not due to accessions from melting glaciers. Small intermittent creeks contribute to it, partly, but its main supply is from springs along its shores, and subterranean, the latter, possibly, from water from the Kootenay River percolating through the sand and gravel of Canal Flat. The first glacial stream to flow into the Columbia is Dutch Creek, from the Selkirks, and that does not feed directly into Columbia Lake but into the head of the channel that leads to Windermere Lake. One habitation is all that was noticeable, a ranch house on the right, set 200

Columbia Lake, Looking South

feet or more above the water in a little clearing in the timber that borders that side. On the left the Kootenay Central Railway skirts the base of the benches already mentioned.

Columbia Lake and Windermere Lake are connected by a very winding channel through the low bottom land that has formed between them. This channel leaves the upper lake on the right at the base of the Rockies, and is about 100 feet wide at its head. Here I found considerable current, and entering it shortly passed the little steamer *Armstrong* beached on the right hand shore and careened over with the slope of the beach. This boat at one time operated on the River above Golden and was last used for freighting at the time of the construction of the Kootenay Central Railway, although she had never passed through the canal. About a mile and a half below the head of the channel it is spanned by a wagon bridge, and when I reached it I went ashore, as I knew that the Fairmont Ranch was nearby. The road turns to the northeast from the bridge, and I started to walk up to find the ranch house but had not gone far when two Indians on horseback overtook me, told me how far I would have to go and that there was a store there. I passed cultivated fields on the gently sloping hillside and in about half a mile reached a cluster of buildings which constituted the headquarters of the ranch. I had had some correspondence with Mr. J. W. Crawford, a civil engineer, who was manager of the ranch, and when I arrived he was at home. With him were two British army officers, Major F. C. Turner, and Captain Fredericks, to whom I was introduced. Mr. Crawford urged me to sleep at the ranch house that night and as I had not, as yet, prepared my tent for erection I complied, and slept in a bed that night, the first time for some weeks, and the last time for many months.

I left the house early in the morning, before anyone else was up, went back to my boat, and cutting tent poles and stakes set up the tent for the first time. For uprights I used forked sticks; for a ridge a slender pole about 12 feet long, at the larger end of which I tacked a ferrule made of tin, and then, in that end, wedged a large sharpened spike—this pole to be used as a pike-pole when lining down the rapids. From a stick of cedar were made small stakes for fastening down the tent. These poles and stakes were carried with me until I reached Astoria.

About three-quarters of a mile above the Fairmont ranch house, and on the mountain side is a hot mineral spring, locally famous for its medicinal properties. Its temperature is 115° Fahrenheit. As I had had no bath after leaving Cranbrook the opportunity for a good one here was attractive, and I decided to remain over a day and visit the spring. A wagon road led uphill to the spring which I found in an excavated basin as large as a good-sized bathtub and enclosed in a small building. The water was hot but bearable, and slightly impregnated with mineral. I first drank some of it and then had a cleansing and refreshing bath.

From the location of the spring, high on the mountain side, a good view of the low bottom land to Windermere Lake is obtained. It stretches clear

—*Photo. by Fisher*

Columbia River at Fairmont

across the valley, from one mountain slope to the other, and the River channel, like a thread of silver, meanders through it, with innumerable, what appeared to be small lakes paralleling it on both sides. One lake, larger than the rest, was strung like a white bead on the silver thread. Willows, cottonwoods, and alders grew everywhere between the apparent lakes, which are really lagoons, except the one the River passes through.

That night, cutting spruce bough for a mattress, I passed the first night of the trip in the tent, and in the morning of June 15 left the camp at the bridge, and gliding under it resumed the journey down stream. The current was moderate but the channel proved tortuous, the banks low, and bordered with willows, cottonwoods, and an occasional pine tree. A short distance below the first bridge was a second one, disused, and setting so close to the surface of the water that it was only by first putting my weight in the bow and then in the stern that the boat would go under it. A little farther along a fallen cottonwood tree obstructed the channel completely and a way had to be forced through it. Going to the top, where the branches were thin, chopping some of them off, and then getting out on the main stem and submerging it with my weight I was able to drag the boat over it. While thus engaged a duck came and lit on a snag in the water not thirty feet away—I quietly reached for my shotgun and shot it. About two and a half miles from my late camp Mud Lake was reached—the bead strung on the silver thread as seen from the Fairmont hot spring. It is about a half-mile long and the same in width, and very shallow. After leaving Mud Lake the channel turned towards the Selkirks and seven miles from Columbia Lake I reached Windermere Lake and immediately encountered a strong head wind, but not as violent as the one contended with on the upper lake. Slow progress was possible, and continuing along the left shore, Windermere, a tourist resort on the right shore, was passed. The wind blew steadily all afternoon, and it was stiff rowing, but by 6 o'clock P. M. I reached the foot of Taynton's Bay, which is formed, on the left, by the point that juts southward near the lower end of the lake. Here I went into camp at the golf links, and close to the spot where David Thompson erected his first Kootanae House, and where the memorial in his honor is to be established.

Windermere Lake is 11 miles long and 1.5 miles wide in the widest place. It has more scenic beauty than Columbia Lake, its shores being more attractive. The high, flat benches appear on both sides, and it is fed by numerous streams both from the Rockies and the Selkirks. The Kootenay Central Railway follows along the western shore.

Before leaving home I had exchanged some United States money for Canadian currency, the bank at Los Angeles allowing me a premium of 10¾ per cent. As everything in British Columbia had cost about one-third more than south of the border I was short of local money and it was necessary for me to get more. Just north of Taynton's Bay, and about a half-mile from my camp ground, is the little town of Invermere, located on the high bench just above and west of the lower end of

—*Photo. by Fisher*

The Rocky Mountains and Lake Windermere

Windermere Lake. There is a bank there and I planned to remain over one day to get the money needed, and some necessary provisions.

The next morning after my arrival I walked to Invermere, crossing the Kootenay Central Railway on a bridge over a deep cut, and obtained the provisions and money needed. Ten per cent was the rate of exchange by this time. At Invermere I made many inquiries about conditions along the Columbia River but found out little that was satisfactory until one man advised me to see Basil G. Hamilton, a pioneer of the district, as the most fertile source of information. Mr. Hamilton lived at the northern edge of the town, and walking out to his residence, a large frame bungalow, enclosed in roomy grounds, I met Mrs. Hamilton, who told me that her husband was not at home but would be in the evening, and she invited me to tea to meet him. I accepted the invitation and then met Mr. Hamilton, whom I found well posted, and who cordially enlightened me all he could, and furnished me the following books to read: *David Thompson's Narrative,* edited by J. B. Tyrrel; *The Columbia River,* by Professor Wm. D. Lyman; and a little booklet issued by the Union Pacific Railroad Company, entitled *The Columbia River.* These I went through hurriedly, making such notes as seemed useful, especially about the Thompson activities, and the various rapids on the Columbia River. Later Mr. Hamilton sent me a little booklet published by himself entitled, *Naming of Columbia River;* and much other detailed information of value.

Mr. Hamilton advised me to see Walter J.

Nixon, a former riverman, who had frequently run the rapids of the Big Bend but was now engaged as a packer and guide. Calling at Mr. Nixon's I found him at home; and he described the rapids as far as the mouth of Canoe River, stating that he considered those below Kinbasket Lake—called Twenty-three Mile Rapids—as being the worst. In showing me some of the photographs in his collection he, incidentally, remarked that the previous September he had guided a magazine writer, Lewis R. Freeman, to the Lake of the Hanging Glaciers and Ice Caves 35 miles west of Invermere at the head of Horse Thief Creek; and that Freeman had, afterwards, navigated down the Columbia River; and had written him that he had arrived safely at Portland, Oregon. In my progress down the Columbia I continually came across Freeman's trail, and met many who knew him. He had a cameraman with him; and after leaving Horse Thief Creek he went first to Canal Flat, and then by rail to Beavermouth, below Kitchen Rapids. From there, with two experienced rivermen and his photographer, he went through the Big Bend rapids to Revelstoke. From Revelstoke he descended the River in a small rowboat, and eventually reached Cascade Locks alone—having dropped his cameraman on the way. At Cascade Locks, 165 miles above the mouth of the Columbia, he boarded a steamboat for Portland, Oregon.

Freeman's story of his trip was published serially in the Sunset Magazine from July to November, 1921; and later in book form under the title *Down the Columbia.* His book gives all his movements, and they can be traced if carefully followed. His story is interestingly written, and is well worth perusal as an entertaining tale and as a comparison of his experiences and my own in the descent of the River.

Although Freeman lives in Pasadena, California, and I in the adjoining town of Alhambra, I had never seen or heard of him, nor can I recall having ever read any of his stories prior to the publication of his Columbia trip. It was a mere coincidence that two men living so close to each other, and unacquainted, should both conceive the idea of braving the Columbia River

As I would traverse a mineralized country below Invermere, and expected to do some prospecting, it was necessary to get a Free Miner's License. The Government Sub-Agent's office is located at Wilmer, four miles north of Invermere. It was raining June 17, but I walked to Wilmer and there obtained the license; and also asked for and received a hunting permit which allowed me to kill game for my own consumption either in or out of season. As prospectors are much of the time out in the wilds, and are liable to run short of food this especial privilege is granted to them.

The weather continued stormy, and as I wanted to get a picture of Windermere Lake before leaving, I waited for it to clear up—which it did on the afternoon of June 18. That afternoon Mr. Hamilton visited my camp, and together we went over to *Pynelogs,* a commodious and artistically constructed log dwelling, in highly cultivated grounds, at the end of Taynton's Bay and just above my camping

Taynton's Bay, Lake Windermere, Showing Kootenay Central Railway place. There I was introduced to the owner, Mr. R. Randolph Bruce, a wealthy mining man and a retired civil engineer, who showed me his fine collection of Navajo rugs, and beautiful flower garden. Miss E. N. Kettle was also introduced who served us with tea in the sun-parlor, from where we could look southward upon the magnificent panorama of the mountain peaks of the Rockies and Selkirks with the glittering expanse of Windermere Lake between. *Pynelogs* is at the bay shore and is provided with its own wharf and boating facilities.

Having obtained everything I needed at Invermere, and as the 19th proved clear, I departed from Taynton's Bay at 9 o'clock A. M., and rowing southward to the end of the point, turned it, and down the lake to the town of Athalmer, at the extreme lower end of Windermere Lake. Here Mr. Hamilton met me, and after taking several photographs of me and the COLUMBIA, both for his own and my use, bade me good-bye and sped me on my way.

What is known as the Windermere District consists of the settlements of Windermere, Invermere, Athalmer, and Wilmer. Of these Windermere is the oldest, being established by the early prospectors in search of gold, and was for a long time the only business center. Of late years it has been superseded by the later settlements and is now a tourist resort, having a permanent population of about thirty persons.

Invermere is the latest townsite, having been established in 1912, and is the largest and most progressive, and at the time I visited it there was considerable activity in the way of building and improvements. It is located west of the Kootenay Central Railway, and well back from the Lake. It has a good hotel, several stores and other places of business, the Dominion Government experimental farm, the office of the Irrigated Lands Company, and the only bank in the District.

Wilmer is on the west side of the Columbia River about three miles below Windermere Lake, is a small place of no particular consequence except that the Government Sub-Agent's office is located there, but it manages to support a shabby hotel and store. No doubt the place was active in earlier times when the mining boom was at its height.

Athalmer is the second oldest business center, and is located both on Windermere Lake and the Columbia River, being on the west side of the latter. It has a hotel, post office and three good stores, and evidently does considerable trading with outlying districts. It is built on low, flat ground, much of it under water when I was there, and the place has the appearance of decay. The railway station that serves the whole District is at the west boundary of Athalmer, and is called Lake Windermere, a designation that causes much confusion to the stranger. The total permanent population of these settlements is 195.

The Windermere District has an average rainfall of about 13 inches. Supplemented by irrigation from mountain streams farming is carried on, but to a limited extent owing to a limited market. Hay, alfalfa, clover, vegetables, small fruits, and hardy apples are the successful products of the soil; while stock raising and dairying are also a feature. The summers are not excessively warm; and considering the latitude and elevation—2,566 feet at the surface of the lake—as compared with the country east of the continental divide—and which is the case all over the West—the winters are not extremely cold. The average winter depth of snow is about 18 inches. The air is pure, bracing, and healthy. The mountain views are grand and inspiring, beyond description, and many places of extreme interest, within the mountain fastnesses, can easily be reached by lovers of nature. Both Sinclair Hot Springs, a famous resort about 11 miles north of Athalmer, and Fairmont Hot Springs, already mentioned, are convenient for those who want to test their curative properties.

CHAPTER VIII

FROM ATHALMER TO MOBERLY

Athalmer, as has been stated, is at the outlet of Windermere Lake, and it is here that the Columbia becomes a real river. At this point it is against the hillside of the Rockies, has a width of about 200 feet, and a current of about three miles an hour.

Bidding good-bye to Mr. Hamilton, and many of the townsfolk who had assembled, I pushed the COLUMBIA off into the current, rowed down stream, and under the highway bridge just below the townsite. I found the River to be placid; much of the current was slack, and in no place exceeded three miles an hour, and then only below the bends which backed up the water above. It pursued an extremely winding course back and forth across the flat of the valley from one to four miles wide. Everywhere, on both sides, it was paralleled by lagoons; resembling more than any other river I ever saw—except that it was smaller and had less current—the lower Mississippi in Missouri and Arkansas. Its shores are lined with willows, alders, cottonwoods, and an occasional pine except where it impinges against the mountain sides, and there the pines and firs grow. In one place it ran southward instead of northward, and to get an idea of its crookedness all that needs to be known is, that while it is but 73.7 miles by the railway from Athalmer to Golden, by the River it is 90 miles. As the weather

Athalmer, Looking North

had become warm, and the glaciers were melting, or "working," it was at a high stage, the banks being nowhere over two feet above its surface, and many of them flooded. The water was daily getting muddier, due to the flow from the glaciers, which always discharge muddy water when active. I had left Athalmer at noon and in a little over a mile reached Toby Creek, near which Thompson had established his permanent Kootanae House, and about a mile and a half farther down passed the mouth of Horse Thief Creek, heading in the Selkirks at the Lake of the Hanging Glaciers. That afternoon I made about 15 miles and camped in the willows on the left bank of the River.

The next day there was little difference in the appearance of the River and the bottom land but the high benches noticed above had disappeared—they had terminated five miles below Athalmer on the Selkirk side and twenty-five miles below the same place on the Rocky Mountain side—and were succeeded by evergreen timbered mountain slopes reaching to the bottom lands. Late in the afternoon I passed the mouth of Spillimacheen River, a large stream flowing into the Columbia from the northwest. Just above its mouth a highway bridge crosses the Columbia; and on the Kootenay Central Railway, which had crossed to the right hand side of the River just below Athalmer, and not far above the mouth of the Spillimacheen is a settlement called *Galena,* which happens to be the name of the town in Illinois in which I was born. I camped that night on the right side of the River about two miles below the Spillimacheen.

Bridge Across the Columbia at Spillamacheen

The next day the River and valley appeared about the same, except that evidences of logging and sawmill activities soon became manifest. At Parsons I came to a log boom, blocking the River, and I had to get out on the logs, submerge them and then drag the COLUMBIA across, soon reaching another boom, completely blocking the River, and the logs too large to be crossed over. The bottom land was flooded here and I cut a way through the willows into a lagoon which carried me into the channel below the boom. Later, I reached the first sawmill, a small one at Nicholson, on the right hand side of the River. Just below Nicholson was a great log boom, fully two miles long, filled with thousands of logs—enough to make many million feet of lumber. I was able to get by this boom, on the left, and soon the current slackened and the water spread over the bottom for fully a quarter-mile, giving me plenty of passageway by hugging the Selkirk shore.

These log booms extend diagonally from one side of the River, forming a pocket terminating in a pond. They are formed of clusters of from three to five piles driven perpendicularly into the river bottom and bound together at the top with wire ropes. The pile clusters are generally placed about fifty feet apart. Resting on the water, on the inside of the clusters, are floating logs extending, in a single string, the full length of the boom and connected, end to end, by strong iron fastenings. Within the boom, between the floating logs and the shore, the saw logs are confined. The current carries them into the pond below from whence they are drawn up an

THE COLUMBIA RIVER AND SELKIRKS BELOW LAKE WINDERMERE incline and fed to the saws within the mill. Should the logs become jammed at any time in the boom they are untangled by the use of peavies and pike poles.

The boom last reached was the one used by the sawmill of the Columbia River Lumber Company at Golden. I soon came to it, a large mill having a capacity of 350,000 feet, B. M., of lumber per day. Although the River above had been 400 feet wide much of the way, and at the lower end of the boom had expanded to a quarter-mile, at the sawmill it is contracted to about 200 feet, and is spanned by a board walk, resting on the water, and extending diagonally from shore to shore. I was at Golden but did not know it, as there was no evidence of a town—nothing but the sawmill. I had arrived at about 4:30 o'clock in the afternoon of June 21, and had been a little over three days in coming from Athalmer. To get below the board walk it would be necessary to unload, drag the boat across the walk and then re-load. As this would take some time and it was well along in the afternoon I deferred the matter until morning, and went into camp, in the open, on a small flat, at the foot of the hill, directly across from the mill.

Still not realizing that I was at Golden, in the morning I hurriedly threw into the boat what had been unloaded and rowed down to the walk, carried across and proceeded down stream keeping a sharp lookout for the town. The river widened considerably and its current increased rapidly after passing the obstructing board walk, running at least five miles an hour. In a short time I passed the mouth

Log Boom Above Golden

of the Kicking Horse River, on the right, but there were no signs of a town. In about an hour I reached a railway station on the right hand side and landed to find out where I was. The station proved to be Moberly on the Canadian Pacific Railway, and consisted of a sidetrack, a makeshift depot, and two dwellings, one for the section foremen and the other for his Chinese trackmen. The section foreman's wife, Mrs. R. M. Colwell, informed me that Golden was six miles, by the railway, south of Moberly; and it then struck me, forcibly, that I had passed the night at the outskirts of the town.

As I expected mail at Golden, and also wanted to purchase a length of rope, to use in lining down the rapids ahead, a sheet iron stove, and a gold pan with which to prospect for placer gold, the logical thing for me to do in the situation was to go into camp at Moberly. By this time the River had become quite muddy, and as there was a little stream of clear water about 300 feet south of the section house I found at the creek's mouth, just under the hillside, a small patch of level ground barely large enough for the tent, and there established my camp.

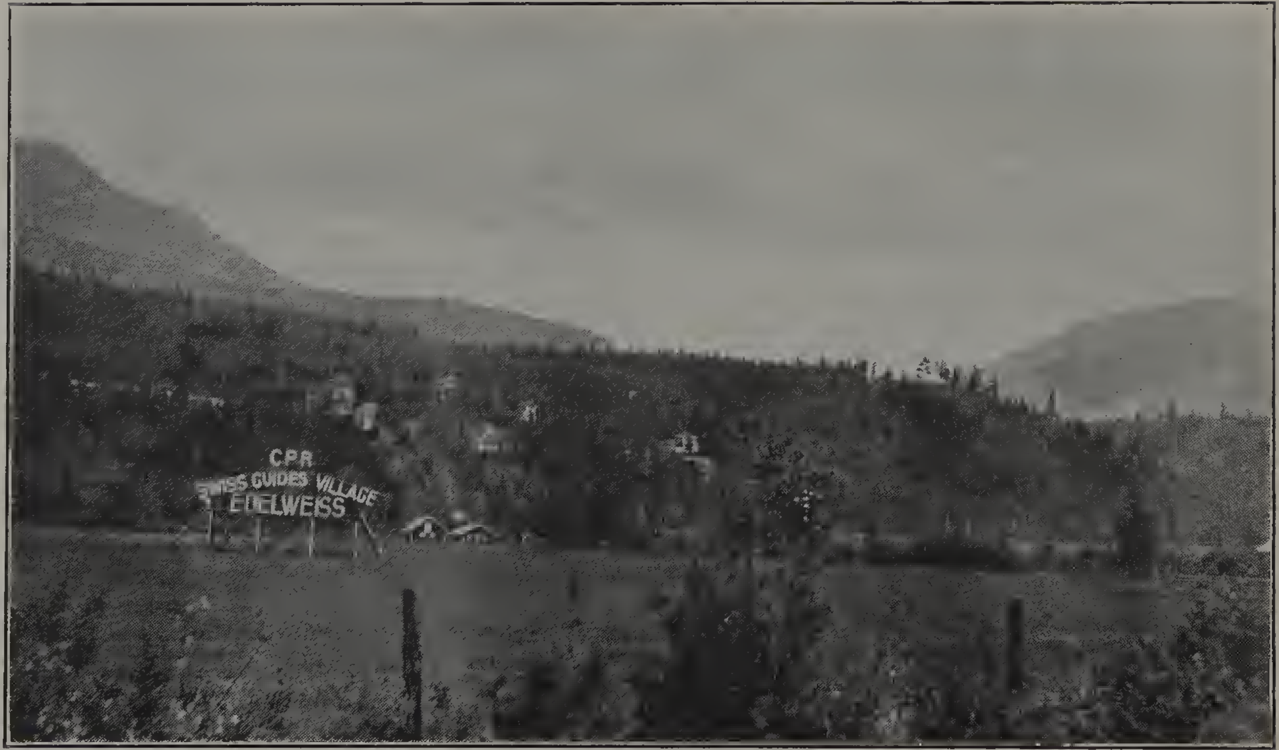
The succeeding morning I walked the six miles to Golden by way of the railway track, and found the town located on an extensive flat below the mouth of Kicking Horse Cañon. The Kicking Horse River flows through the town and was a raging torrent when I saw it. The sawmill near which I had encamped is seven-eighths of a mile from the business section of the town, and to the west of it.

Golden is the largest town on the Columbia River east of the Selkirk Range, but has a population

Sawmill at Golden, Kicking Horse Cañon in the Distance of only 1,500. It is mainly a lumber town and tourist resort, but is the agricultural center of 800,000 acres of land; with the possibilities of becoming a manufacturing center, as there are nearby streams capable of developing many thousand horse-power of hydro-electric energy. It received its name "Golden City" because it was supposed to be in the midst of a rich gold district. In 1864 placer gold was discovered in the creek beds, and there was a stampede to the new-found mining territory. The mines did not prove sufficiently remunerative, the field was soon abandoned, and now one cannot buy even a gold pan at Golden.

I counted five hotels at Golden. There are three large general stores, two banks, a weekly newspaper, and the usual accompaniment of shops, offices, and other places of business common to small towns. There are a number of Government offices located at the north end of the town—the Provincial Government Agent, Provincial Police for the Northern Kootenays, Mining and Water Recorder, Provincial and Dominion Land Agency, and Dominion Customs and Post Office, the latter being in the business district near the railway depot.

At the Board of Public Works I met Mr. G. C. Tassie, District Engineer, who furnished me with much useful information, and several good maps embracing the Columbia River Valley in British Columbia. I also met Mr. W. Wenman, who wrote me the informative and encouraging letter which has already been quoted; and his son Billy, who developed and printed the photographs I had thus far taken.



Swiss Guides' Village near Golden

Golden is the northern terminus of the Kootenay Central Railway (a part of the Canadian Pacific system) which there connects with the main line of the Canadian Pacific Railway, which has come from the east, over the Continental Divide and down the Kicking Horse River, known to the Indians as the "Wapta." At the head of the Kicking Horse are the celebrated spiral railway tunnels.

As the summit is approached from the west the railway line, as originally constructed, had a section of three miles with a maximum gradient of 4.5 per cent, a grade so steep that four 154-ton consolidation locomotives were required to haul a trainload of 710 tons upgrade. The only way to reduce the heavy grade was by obtaining additional distance, and this the topography of the country would not permit in the ordinary way. It had to be obtained by some method and that method was by tunneling directly into the mountain sides with curves that formed complete loops, the track at one extremity crossing over the other at the other extremity. Two of these loop tunnels were driven, forming an irregular figure eight. Tunnel No. 1, on the south side of the Kicking Horse, is 2,206 feet long, with a spiral curve having a radius of 537 feet. It is practically under Mount Stephen, the dominating peak of the Rockies in that vicinity. Tunnel No. 2 has the same rate of curvature as the other and is 2,890 feet long. The new alignment obtained by the use of these tunnels gives an increased length of line of 8.2 miles, and a gain in elevation of 93 feet. In the tunnels the steepest gradient is 1.6 per cent, and the maximum on the balance of the line to the summit is now 2.2 per cent. Two 154-ton consolidation locomotives now haul, up-grade, a trainload of 980 tons weight.

The section of the Rocky Mountains where the Canadian Pacific Railway climbs to the summit is called "Rocky Mountain Park," and is noted for its great ice fields, beautiful lakes and other scenic attractions. The principal tourist resorts are Banff and Field.

I failed to get a camp stove and gold pan at Golden, but purchased 100 feet of good half-inch manila rope for a towline for lining purposes in the rapids. I also failed to receive any letters, and for the latter reason decided to remain over at Moberly until the arrival of the next train on the Kootenay Central, which meant a wait of several days, as the train went over the line but twice each week.

On the night of June 25 there was a severe rainstorm, and the Columbia River rose rapidly. About daylight, as I was encased in the sleeping bag, I was awakened by finding my feet in water which had entered at the low end of the tent and was climbing fast toward the higher ground at my head. Getting up at once I pulled down the tent and erected it anew on the high ground near the section house, and about 50 feet above the River. In another hour the place where my head had been lying was covered with six inches of water. The River was out of its banks, and was fully a half-mile wide. Fresh snow had fallen on the Selkirks during the night, and possibly on the Rockies whose summits were hidden from view from my camp.

CHAPTER IX

THE TERRORS OF THE RAPIDS RATIONALLY CONSIDERED

Almost from the outset of my voyage I had been regaled with tales of the dangers of the rapids around the Big Bend, and the many accidents and deaths that had occurred.

The first was told me by Mr. Nixon, at Invermere, who related the trouble he had had in lining a canoe load of flour down the Twenty-three Mile Rapids. His helper had let the towline slip out of his hands, the canoe was dashed against the rocks; was finally recovered, but with nine holes punched in the bottom and sides. It was only kept from sinking by the flour squeezing into and plugging the holes.

The next story was retailed me by several persons at Golden. A Dane trapper, but a short time before, had his canoe upset at the bridge of the Donald railway crossing, had lost his entire winter's catch of furs, his rifle, and provisions, and only saved his life by swimming.

Mrs. Colwell, the wife of the section foreman, at Moberly, told how her brother was drowned at Beavermouth, by the upsetting of a boat, while crossing with two others. He alone of the three was drowned.

I heard, also, how Walter Steinhoff, a bootlegger, had lost his canoe load of liquor and his life in trying to run Surprise Rapids; and about his body being buried at Middle River near where it was found.

I was frequently told about the terrible Death Rapids and the many accidents that had occurred there to the early voyagers. How, but recently, a man named Louis and an Indian had lost their outfit there. Also, how Bob Blackmore had lost his boat and load while lining down Priest Rapids, which are practically a continuation of Death Rapids.

Later, I heard how a young man and two girls lost their lives at Revelstoke by their boat going under the submerged dam at that place.

There were many doleful predictions of what would happen to me in the rapids. One man, that I particularly remember, said nothing, but as he shook my hand and bade me good-bye I could see pity shining in his eyes. They said as plainly as if expressed in words, "Good-bye, old chap, I will never see you again; your bones will rest in the bottom of the Columbia."

My knowledge of swift rivers and their rapids convinces me that practically all the accidents which occur are due either to inexperience, ignorance, incompetence, or recklessness. I met the Dane trapper near where his accident happened, and he admitted that the upsetting of his canoe was due to his own carelessness. I afterwards saw the canoe where she had gone ashore some distance down stream. Her side was crushed in, and she was a tiny craft, too small for the swift current near Donald. Mrs. Colwell's brother lost his life because the boat in which he was riding was being paddled by a one-armed man, who was physically handicapped as a boatman. Walter Steinhoff lost his life by recklessness in trying to overtake another bootlegger who had preceded him a short time before. Blackmore lost his boat because his helper let the towline get away from him. (I learned later that Blackmore's boat and her load were recovered in the eddy just above Revelstoke.) Nixon's accident occurred for the same reason that Blackmore's did. The accident at Revelstoke was due to ignorance, as anyone familiar with swift rivers knows that if a small craft strikes an obstruction, broadside, it instantly fills and turns over from the outside and goes under the obstruction.

After I had safely run the rapids of the Big Bend, which are the most dangerous on the Columbia River, and proved that I was no reckless novice, people ceased trying to frighten me about the terrible dangers that would beset my pathway. Had I been of the kind easily influenced by tales of disaster I would never have gone down the Columbia farther than Donald. But the stories told had no other effect than to decide me to use due caution at each of the alleged bad places. I had every confidence in my experience and ability to meet any crisis that might arise, and the results of my trip proved whether, or not, that confidence was well placed.

The following articles, abstracted from various sources, will illustrate the statements above made.

In 1885 Mr. A. P. Coleman and a companion made a trip down the Columbia, below Beavermouth. In his book *The Canadian Rockies,* he says:

> "We had come to the head of Surprise Rapids, from Beavermouth, and our explorations had finally convinced us that it would be unsafe to run any part of the rapids with our small canoe—why not go down to the beach, build a small raft, and run swiftly, and without labor down to Lake Kinbasket? We soon found the right spot (to build the raft) where an eddy had piled up a great heap of driftwood, among which were planks and runaway boom logs from up river, containing spikes which we chopped out for our use.
>
> "With much hammering of spikes, that kept the echoes busy, the timbers and planks were fastened together, and then the glacier rope was tied around each end of the raft to make things doubly sure.
>
> "With some heaving and prying, the raft, already half in the water, was launched in the eddy, and after cooking dinner, each shaped a paddle and prepared a pole to suit himself, and finally the packs were made up carefully in their bags and wrapped in a waterproof to keep them dry if seas washed over. A strap was tied round them and made fast to the raft, and all was ready.
>
> "We made no haste in paddling across the eddy, for who knows what was beyond? Presently the current caught us and we were swept past the point into the main stream.
>
> "The waves began to drive over our knees, and we paddled desperately to keep clear of a sharp island ahead. We had thought the waves were not too much for rafting, but now they seemed mountains high, and we began to wonder if we would get through alive.
>
> "It was nonsense to paddle any more, for our raft was revolving end for end, and then a great billow fell upon us sideways and the raft was overturned. There was a moment under water, snatched and tugged at by unseen fingers while I clung to the bind-

ing rope, and then dragged myself upon the upturned bottom of the raft, and saw Frank just scrambling up at the opposite end. I remembered that he could not swim, and shouted to him to hold for his life.

"We had rounded the island and were now far past it, in the very center of the current, the raft plunging and revolving while we shifted constantly to face the danger. One pitch followed another, the waves half smothering us from time to time. And now right ahead was the worst point of all—what the Ottawa raftsmen call a "cellar," where the water sucks down in front of a ledge of rock and flings itself as a towering wave. A strange sensation of sinking into the depths was followed by a deluge of water leaping and tumbling upon us, and then the raft struck, heavily, and was nearly dragged from under us. Was it going to pieces? Next moment we were above water again, half strangled, but alive, and we supposed that the packs underneath the raft had struck and been torn from their fastenings.

"The most violent part of the rapids was over but we were flying straight for a jagged projecting rock at a sharp bend of the river. If we struck the raft might go to pieces; so I braced myself and prepared to fend off with the pole that had caught in the binding rope. The pole was wrenched aside nearly pushing me overboard, and we shot round the bend like a projectile, just grazing the rock.

"The current now moderated, and paddling with the pole, we gradually drew to the right shore. Frank caught an overhanging bough and we were soon moored to a stump at the foot of a steep-cut bank, none too soon as the Columbia is largely snow water and we were shuddering with the cold.

"Transport by raft had certainly saved some time for we had come down at least four miles in fifteen or twenty minutes, but on the other hand we had not been able to admire the fine scenery of the canyon on the way, and we had lost everything we possessed, except our dripping clothes. Still there was a certain thrill of pleasure and pride in having done it, though we did not want to repeat the exploit. Presently, as we stood there, I on the raft and Frank on the stump, a disagreeable feeling came over us that without blankets, rifles, frying-pan, or axe, life would be shorn of its comforts; however, our rashness deserved a fine, for we had foreseen the danger to some extent before starting.

"The romance of the situation had vanished and we began to think of scrambling up the steep bank when Frank caught sight of something black swaying in the water under the raft; there were the packs still enclosed in the waterproof, barely held at one end by the strap.

"Our water-soaked bags weighed a ton and could hardly be dragged up on the steep shore beside the stump. The blankets and other soaked garments were drawn out, and wrung before climbing the bank, which was about seventy feet above the river, and in successive journeys, all was carried up and spread on the rocks and bushes to dry in the afternoon sun.

"Rummaging in the dunnage bags disclosed the welcome fact that very little damage had been done, though the sacks of sugar and salt, of course, were half dissolved and proved very hard to dry, and as hard as bricks when dry; while the can of baking powder had exploded and filled the bag it was in with foam. The matches, put inside the blankets for safety, were so slimy that I was for throwing them away, but Frank spread them in the sun and actually coaxed one to light with a lens as a burning glass. Soon a splendid fire was roaring, while our clothes and blankets steamed in piles about it.

"Before night everything was dry and when we had fried bacon and made tea to accompany the sodden bannocks for supper we agreed that life was decidedly worth living, and were glad to crawl into the blanket bags and little shelter tent for the night."

Could anything be more foolhardy, and show more ignorance than the above described attempt to run Surprise Rapids with a raft?

In 1817, Ross Cox, one of the early voyagers, went up the Columbia as far as Canoe River. Some of his men he sent back down the Columbia, and he with the remainder journeyed up Canoe River, and thence went east over the Rocky Mountains. Some time later he describes the fate of those who returned down the River, and explains why Death Rapids were so named:

> "Finding some of our men invalids it was deemed imprudent to bring them across the mountains and six Canadians and Holmes, the English tailor, were therefore sent back in the best canoe to Spokane House. Out of the seven men, two only were able to work; but as the current was in their favor it was hoped they would arrive in three days at Kettle Falls, from where they could easily reach Spokane. As our stock of provisions was very scanty, we could only spare them enough for the above period. On separating from their comrades, some of them appeared dejected and melancholy, and foreboded that they would never see Canada again. Their prophecy, alas! was too true.
>
> "I did not hear the fate of the unfortunate party until three years afterwards. The following is the melancholy detail: On leaving the Rocky Mountains they drove rapidly down the current until they arrived at the Upper Dalles, or Narrows, where they were obliged to disembark, a cod line was made fast to the stern of the canoe, while two men preceded it along the banks to keep it from striking against the rocks. It had not descended more than half the distance, when it caught in a whirlpool and the line snapped. The canoe for a moment disappeared in the vortex; on emerging from which, it was carried by the irresistible force of the current to the opposite side, and

dashed to pieces against the rocks. They had not the prudence to take out either their blankets or small quantity of provisions, which were of course all lost. Here then the poor fellows found themselves deprived of all the necessaries of life, and at a period of the year when it was impossible to procure any wild fruit or roots. To return to the mountains was impossible, and their only chance was to proceed downward, and to keep as near the banks of the river as circumstances would permit. The continual rising of the water had completely inundated the beach, in consequence of which they were compelled to force their way through an almost impervious forest, the ground of which was covered with a strong growth of prickly underwood. Their only nourishment was water owing to which, and their weakness from fatigue and ill health, their progress was necessarily slow. On the third day poor Macon died and his surviving comrades, though unconscious how soon they might be called to follow him, determined to keep off the fatal moment as long as possible. They thereupon divided his remains in equal parts between them, on which they subsisted for several days. From the swollen state of their feet their daily progress did not exceed two or three miles. Holmes, the tailor, shortly followed Macon, and they continued for some time longer to sustain life on his emaciated body. It would be a painful repetition to detail the individual death of each man; suffice it to say that in a little time of the seven men, two only named La Pierre and Dubois, remained alive. La Pierre was subsequently found on the borders of the upper lake of the Columbia by two Indians who were crossing it in a canoe. They took him on board and brought him to Kettle Falls, from whence he was conducted to Spokane House.

"He stated that after the death of the fifth man of the party Dubois and he continued for some days on the spot where he had ended his sufferings, and on quitting it they had loaded themselves with as much

> of his flesh as they could carry; that they succeeded in reaching the upper lake, round the shores of which they had wandered for some time, in vain search for Indians; that their horrid food at last became exhausted, and they were again reduced to the point of starvation; that on the second night after their last meal, he (La Pierre) observed something suspicious in the conduct of Dubois, which induced him to be on his guard; and that shortly after he had lain down for the night, and while he feigned sleep he observed Dubois cautiously opening his clasp-knife, with which he sprang on him, and inflicted on his hand the blow evidently intended for his neck. A silent and desperate conflict followed, in which after some struggling, La Pierre succeeded in wresting the knife from his antagonist, and having no other resource left, he was obliged in self-defence to cut Dubois' throat. A few days afterwards he was discovered as before related."

It was thus that Death Rapids, or Dalles des Morts, got its name. Not because the deaths occurred in the Rapids, but because they were the contributing cause of them.

The disaster, and the ultimate death of all but one of the participants, was in the first place due to using a light cod line to lower the canoe in the current—it is never safe, in any rapid, to line either a rowboat, canoe, or batteau, up stream or down, with anything less strong than a good, half-inch cotton or manila rope. The second reason was the lack of precaution in not removing the load from the canoe—it might have gone through safely if empty. Everyone acquainted with Death Rapids always "carry" the load there and line the empty boat.

In 1881, Lieutenant T. W. Symonds, in the service of the United States Government, made an exploration of upper Columbia River below the

Boundary; and navigated it, from Grand Rapids to Snake River, in a 30-foot batteau with a crew of four Indians and a Canadian half-breed called Old Pierre. His published report gives his experience at what is now known as Box Cañon.

> "Every stroke of the oar is bearing us onward nearer and nearer to that portion of our voyage most dreaded, the terrible Kalichen Falls or Whirlpool Rapids. We hear the low rumbling of the water, and see the top of the high basaltic rocks and white foam of the tumbling waters. For a few moments the rowing ceases, while brave old Pierre gives his orders to his Indians in their native tongue. He knows that everything depends upon his steering and their rowing or backing at the right moment with all the strength that they possess. Years ago he was in a Hudson Bay Company batteau that capsized in these very waters and out of a crew of sixteen men eight perished in the water and on the rocks. The Indians made their preparations for the struggle by stripping off all their superfluous clothing, removing their gloves, and each tied a bright-colored handkerchief tightly about his head; poles and extra oars are laid ready in convenient places to reach should they become necessary; and then, with a shout, the Indians seize their oars, and commence laying to them with all their strength. We are rushing forward at a fearful rate, owing to the combined exertions of the Indians and the racing current, and we shudder at the thought of striking any of the huge black rocks, near which we glide. Now we are fairly in the rapids, and our boat is rushing madly through the foam and billows; the Indians are shouting at every stroke in their wild savage glee; and it is infectious; and we shout too and feel the wild exultation that comes to men in moments of great excitement and danger. Ugly masses of rocks show their heads above the troubled waters on every side, and sunken rocks are discernible by the action of the surf. Great billows

> strike us fore and aft, some falling squarely over the bows and drenching us to the waist. This is bad enough, but the worst is yet to come as we draw near with great velocity to a huge rock which appears dead ahead.
>
> "Has old Pierre seen it? The water looks terribly cold as we think of his failing eyesight. There is an order, a shout, backing on one side and pulling on the other, and the rock appears on our right hand. Another command and answering shout, and the oars bend like willows as the Indians struggle to get the boat out of the strong eddy into which Pierre has thrown her. Finally she shoots ahead and passes the rock like a flash, within less than an oar's length of it; we shout for joy and breathe freely again. The eddy becomes in a high stage of water a veritable whirlpool with the well at its center many feet in depth. Hence the name Whirlpool Rapids."

The foregoing is very graphically written, but I do not recognize Kalichen Falls, or Whirlpool Rapids, from Symonds' description. He has plainly drawn on his imagination and sacrificed accuracy to dramatic effect. I encountered no such conditions as he has elaborated upon.

Neither do I understand anyone running rapids in the wild manner of his Indians. In another section of his report he states that his crew (except old Pierre) were unacquainted with the rapids of the Columbia River. They must have acted as they did through ignorance, or because they were filled with "fire water." They would not have suited me.

Real rivermen do not dash recklessly, and shouting, through the breakers and whirlpools of a rapid. They are not of that type. Being skilled white-water men they have cool heads with brains that act and re-act quickly in emergencies; and when in the rapids have their minds concentrated on the work in hand, and have no time for shouting or analyzing emotions. They never do things for spectacular effect, but avoid every possible danger. If unfamiliar with a rapid (and its character changes with flood conditions) they examine it carefully to see if it is runable, and if so pick out their route through it. If unsafe to run they examine the chances of lining it, and if lining is impossible they resort to portaging or carrying. They rarely have a serious accident. I know of one man who constantly navigates the rapids of the Big Bend and never has had a serious mishap in 37 years.

As a partial corroboration of the statements I have made, the following taken from Stanley Washburn's *Trails, Trappers and Tenderfeet,* is pertinent:

> "So the men who travel these rivers and survive year after year are the ones that take each rapid with every nerve on the alert and every ounce of strength thrown into the enterprise, for they realize the possibilities far better than the tenderfoot who sits on a heap of blankets, in a boat, and watches the scenery slide past. As a matter-of-fact my own experience in the mountains leads me to believe that one of the surest signs of a greenhorn is the recklessness with which he embarks on swift water enterprises which are little understood."

Warburton Pike in *Through the Subartic Forest* says this:

> "Unless in the case of a perfectly straight piece of water, where you can form a pretty good opinion of the danger by standing up in the stern of the canoe, it is always well to put ashore, and take a look at what lies

> ahead, when traveling down an unknown stream, as you may find yourself at the brink of a cascade, or an utterly impassable rapid, when it is too late to make a landing. Don't listen to the valiant fool in the bow, who shouts: 'Oh, hell! we can make that!' just as you are shooting into an eddy; and if he tries to enforce his opinion by dragging the bow of the canoe out into the current, no experienced voyageur will blame you for clubbing him on the head with a pole or paddle."

Considerable literature in relation to the Columbia River can be found on the shelves of the public libraries, but some of what has been written, although interesting reading, contains errors and gross exaggerations. As a sample of some of the ways in which errors about the River are spread, the following extract from a popular and widely read magazine is enlightening:

> "One of the most interesting adventures to come to public notice in some time is the canoe trip of J. S. Wood, a trapper seventy-eight years old, who journeyed from the headwaters of the Columbia River to its mouth, a distance of two thousand three hundred and eighty miles. The source of the big river is in the Rocky Mountains near the fifty-third degree of latitude. Its headwater, the Canoe River, runs from a small lake in a remarkable cleft called Punch Bowl which is only a few feet from another little lake out of which rises the Athabasca River, a tributary of the Mackenzie emptying into the ocean.
>
> "Wood, accompanied by an Indian friend, started his trip from Punch Bowl Lake. They floated and paddled the long journey, stopping when necessary to hunt, fish, or buy supplies. The trapper observed many bears on the mountain slopes, and reported that mink and muskrat were numerous and rabbits abundant. Though he had made the trip fifty-four years ago, when he was one of the pioneer Northwest trappers,

> to sell furs to the traders near Astoria, Oregon, he found the banks of the streams and the forests much the same as they were in 1868.
>
> "On his recent trip Wood made a point to record carefully every stream emptying into the Columbia River. He counted ninety-three. He portaged forty-two rapids and falls. The trip took a little over four months."

The above article, published in 1922, was shown me by a very good friend to prove that I was not the only one who had navigated the full length of the Columbia; and it would naturally deceive many who are unacquainted with facts. Its absurdity will be recognized by those who know that the Columbia River does not start at Punch Bowl Lake, or even from the mouth of Canoe River, but in a small flat between the Selkirk and Rocky Mountains, 232 miles southward of the mouth of Canoe River; that instead of being 2,380 miles long its length is 1,264 miles; that there are 91 rapids and waterfalls below Canoe River instead of 42, and 18 above that Wood seems to have known nothing about, and besides these a number of bad rapids on Canoe River itself; and that except geese, ducks, small birds, and a few coyotes and jack-rabbits, no wild creatures are now seen along the banks of the Columbia. The large game is only found by hunting for it back from the River.

Wood's story reads like fiction. There is no record to back it up, and if he really made the trip he must have done so largely by land. According to the story, Wood portaged the rapids and did not run them.

When I was employed as an engineer on the survey of the Western Pacific Railway in the cañon of the North Fork Feather River, California, there was in my party a flagman who was a writer of western mountain and backwoods tales. He would frequently say that to make a story interesting to the reader it must be "colored"; in other words, literary liberties must be taken, or in plain English exaggeration must be resorted to. He was so clumsy that he could not stand erect on a side-hill; and frequently was unable to climb to some of the flagging points established in difficult places to reach—some other member of the party having to go there for him. The going finally became so rough that he had to quit the work in despair. Poor Jack! He is dead now. He was a likeable chap and a gentleman, but as a mountaineer and a woodsman he was a failure.

I have often had cause to protest against the custom followed by so many writers in describing nature, and natural conditions, and occurrences, who to make their stories more fascinating color the facts, and add glamour and romance that exists only in their perfervid imaginations, and which are conjured up in the quietude of their chamber long after the happening. Such writers are not to be depended upon, and are usually of the type that let others do the work, and, as Mr. Washburn says, "sit on a heap of blankets in a boat and watch the scenery slide past." The real adventurers and explorers are busy men, doing their full share of work, and having little time to indulge in romance. The record of their experiences and observations are generally reliable and void of conscious effort to be dramatic.

Besides this, no one who has written about the Columbia, except David Thompson, ever traveled its full length. Other early voyagers such as Cox, Franchere, Ross, and others, made partial trips, and all of them, including Thompson, made simple records of their experiences. None of the later writers have followed its course completely, and have depended largely on hearsay and not personal observation. I have followed every foot of the Columbia and know it "first hand," and as a civil engineer and practical man, who makes no claims to being a finished writer; and although my observations were not as thorough as I wished, yet such as they were I intend the record to be one of facts, which will not only be readable, and I hope interesting, but will be instructive and useful to someone else desiring to descend the Columbia. If any romance or glamour creep into my story it will be because it is unavoidable and not because of a conscious attempt at word painting. I will leave my readers to supply the romance; and unless I am afflicted with mental "strabismus" they will see the Columbia River, and its valley, just as it was in the summer and autumn of 1921.

A very interesting work is that of Professor William D. Lyman, *The Columbia River,* which is partially a record of personal acquaintance, but goes farther afield than I do, taking in almost all the territory tributary to the Columbia, and dwelling largely on the early history of what was first known as Oregon Territory, and describing the experiences and trials of the pioneers and early settlers, the upbuilding of the country, and the Indians and their myths and legends. It is somewhat out-of-date for present conditions along the Columbia River, but nevertheless it is, up to the present time, the definitive book on that river, accurate for the time in which it was written and containing but a few minor errors and omitting sections the Professor did not visit. It is written with a wealth of descriptive language, contains much of romance as well as facts, and is well worth attention and perusal by students as well as by those who enjoy interesting historical literature. It is a valuable supplement to my own story.

CHAPTER X

From Moberly to Waitabit Creek

I made another trip to Golden, and bidding goodbye to the Colwells, intelligent and kindly people originally from the New England States, on the morning of June 29 I was again on my journey down stream. The River by this time was very high, overflowing its banks, and in many places extended from mountain side to mountain side, a distance of more than a half-mile. The current was very swift, but safe, and all I had to do was to keep in the middle of the stream. In about two miles I passed the mouth of the noted Blaeberry River, where Thompson first reached the Columbia. There is a large grassy flat at the mouth and Thompson must have had a good place at which to build his canoes.

Below the Blaeberry I had an experience that impressed me as having in it more of the element of danger than anything else I encountered thereafter. I had just passed Donald station, on the Canadian Pacific Railway, when I heard a sound like someone chopping, and looked around to locate the chopper. I could see no one. I was rowing down stream, bow first, and the sound kept getting closer, and suddenly was right behind me. Turning hurriedly I saw a quarter-inch steel rope stretched across from shore to shore and just ahead. The sag of the rope curved it down until it just dipped into

Columbia River near Donald, B. C.

the water. The current would catch the rope, drag it down stream, then release it, and it would fly back upstream to repeat the process. It was the flip-flop, flip-flop of this rope that I had heard and thought was someone chopping. The rope was so small that it could not be seen at any considerable distance and when I first became aware of it, it was but fifteen feet away, so close that I was helpless to do anything. It so happened that the rope gave a flop and started to drag with the current just as I reached it and I passed over safely although it scraped against the bottom of the boat. If the River had been a foot lower the rope would have caught the boat's bow about half way up and doubtless turned her over instantly.

The rope is used by some farmer as a means of ferrying across the River. I made a complaint about it to the Fire Warden of the district and he promised to see that the trouble was remedied by raising it higher above the water, so a skiff could pass under it.

A mile below Donald I reached the first crossing of the Columbia River by the Canadian Pacific Railway. Here on the right hand side a long, level point, about 50 feet high extends into the River, and opposite is a low, flat point, just above high water. Although the River is fully three-fourths of a mile wide near Donald, at the crossing it all passes through a space of 300 feet. The railway bridge is of steel, has three spans and a total length of 400 feet. The whole River passes through the middle span. At this narrow place the current is swift, but without whirlpools, and I had no difficulty in gliding under the bridge. A half-mile below the railway crossing, on the right, is Waitabit Creek, a large glacial stream entering the River about three miles above the head of Redgrave Cañon—the first actually dangerous place I will encounter. As I approached its mouth I noticed a nude man standing on the shore. He had been taking a bath and proved to be K. C. (Casey) Knudson, the very Dane whose canoe had upset under the railway bridge. He had a tent camp in the timber about one hundred yards from the shore. I pitched my tent near him but closer to the river. It was a good camp ground, well above high water, with ample fuel and good water.

Before leaving home I had planned what I conceived to be the best method of proceeding down the Columbia. The plan was this: Building a boat; then going leisurely down the upper river while it was comparatively low to near the head of the first rapids; then, while the flood was at its highest "kill time" until possibly the middle of August, when shorter and cooler days would result in the lowering of the river plane; then, to steadily continue on my way until Astoria was reached, and before the autumnal rains set in. This schedule was followed fairly well, except that at times, while waiting in camp, I would become restless, and if the river receded a little would "inch along" a little way down stream, with the result that I was below both Surprise and Kinbasket Rapids by the middle of August.

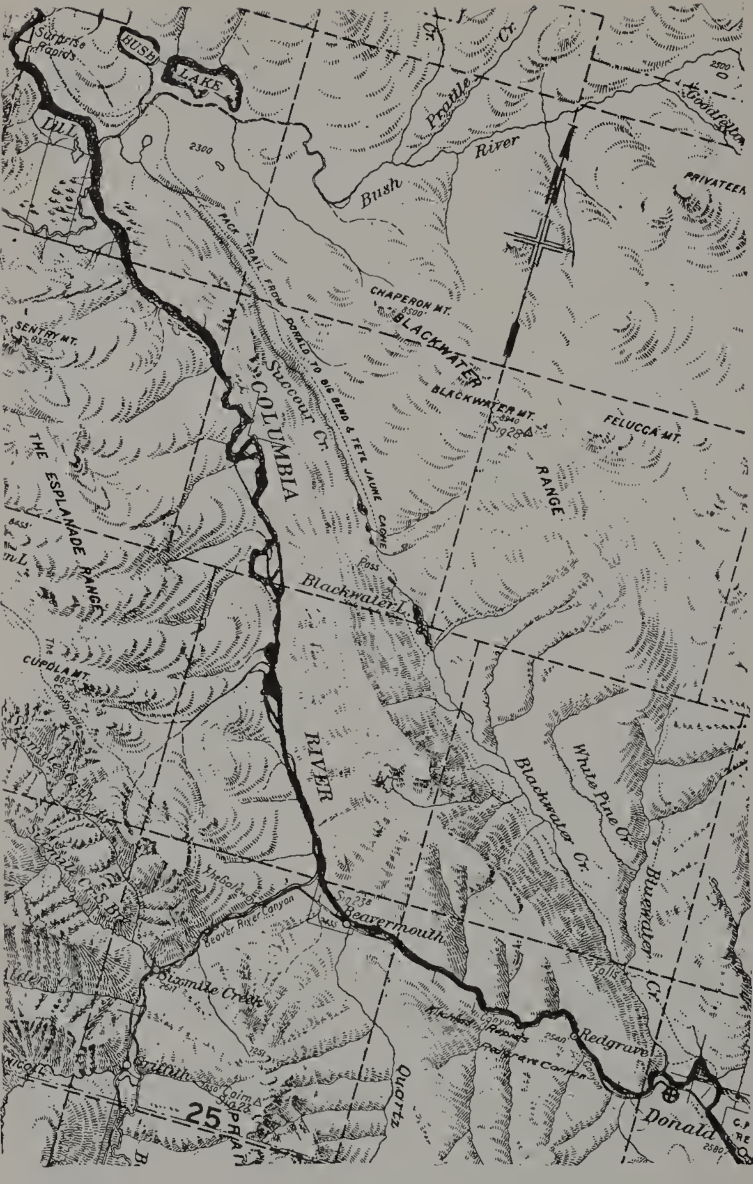
Waitabit Creek seemed a favorable place for me to "wait-a-bit," and it probably derived its name

Camp at Waitabit Creek

from the fact that those who christened it had waited there the same as I proposed to do.

The following day it rained all day, but on July 1, for the purpose of reconnoitering what was before me, I walked across the River, over the Canadian Pacific bridge, and then down the railroad track. About a mile below the crossing the railway curves abruptly to the left, and standing there on the road-bed (where the cross is placed on the accompanying map), a peculiar condition presented itself to my view. Looking to the northwest I could see a broad, heavily forested valley, almost directly in line with the Columbia to the southward. Below me, almost at my feet, was the River apparently come to an abrupt ending. But on the opposite side of it, shimmering through the trees, and not far distant, water could be seen. The uninformed observer, neither familiar with the River's course nor having studied maps, would be convinced that the water seen represented the Columbia's continuation. He would be mistaken. The valley is the valley of Blackwater Creek, and the water is the mouth of Bluewater Creek, into which the Blackwater flows. Their course is exactly opposite to that of the Columbia.

From where I was standing the Columbia, turning sharply to the left, has cut through the mountains forming its first cañon, and then turning to the right comes back in line with Blackwater valley at the mouth of Succour Creek, a little stream that heads close to the source of Blackwater, and forms a practical continuation of the latter creek's valley, but draining in the opposite direction. The moun-



The Columbia River from Donald to Surprise Rapids tain between the trough of the Columbia and Blackwater and Bluewater Creeks is an isolated one, and evidently once united the Selkirks to the Rockies and is now a part of the latter.

Professor Dawson, an eminent Canadian geologist, has this to say about the upper Columbia River: "What is called the Columbia River originally flowed south into Kootenay River from a point thirty miles north of Golden. Some convulsion of nature lowered the elevation here and changed the river's course."

I am not entirely in accord with Professor Dawson. I agree with the statement that the upper Columbia was a tributary of the Kootenay, but my theory is that Blackwater Creek was the head of that tributary, and that a lake existed from the then mouth of Blackwater and occupied the valley all the way southward to Canal Flat, where it discharged into the Kootenay. The difference in elevation between Canal Flat and the head of Redgrave Cañon is but 150 feet, and the lake could easily have been of that depth. Eventually the water at the north end of the lake found a weak place in the mountain side on the west and gradually eroded an outlet which became the present channel of the Columbia and the stream reversed its course. The Kootenay River then silted in Canal Flat. This would make Beaver River the original head of the Columbia River.

Leaving the place where I had made my observations and reached my conclusions about the ancient character of the upper Columbia, and how Redgrave Cañon had been formed, I followed the railroad curve to the left and was soon within the confines of the cañon, an eroded gorge through the neck that once united the two mountain ranges. The cañon is about three-fourths of a mile long, narrows up, at water level to not more than 200 feet in places, and is quite crooked. The current is very swift, swinging back and forth from rocky point to rocky point. There are no rapids, but many eddies and whirlpools, and one dangerous maelstrom at the lower end.

Before going further, as there will be numerous eddies, whirlpools, and maelstroms to contend with, before Astoria is reached, I will explain to the uninformed reader what they are.

An eddy is generally found near the shore where some obstruction causes the current to reverse itself and run up stream, and is usually spoken of by rivermen as "backwater." Sometimes they are quietly circling currents. They are not dangerous but are an aid to navigators ascending a stream. A whirlpool is a mass of deep, swirling water, often in the middle of the channel, and with great gripping power in its current. They are not necessarily dangerous, but are good things to avoid, as once within their clutches vigorous rowing or paddling is necessary to escape from them. According to the Encyclopedia Britannica, "water tends to flow in vortices due to conflicting currents, when pronounced called whirlpools"; and, "a maelstrom is a destructive, sucking whirlpool."

At the maelstrom Redgrave Cañon narrows to about a hundred feet in width. A projecting cliff juts out on the left and immediately opposite to it is a low rocky point with a tail of scattered rocks extending into the water. The current here becomes very swift, with a foaming crest, and runs directly towards the maelstrom—which is just below the cliff on the left—but is deflected, possibly by the back action of the swirling mass, and turns to the right between the maelstrom and an innocent eddy, that is formed just below the low rocky point on the right. Down stream from the narrows the River broadens out, the current is quite swift but is free from obstructions and agitated water. I afterwards learned that the maelstrom in Redgrave Cañon is 70 feet deep at time of high water, and has been known to engulf large trees and draw them down out of sight. It was violently agitated when I saw it and had a great depressed vortex.

I carefully examined the whole length of the cañon, and photographed it from a cliff just below the narrows. Particular attention was paid to the vagaries of the current, and location of points of danger. The only serious place seemed to be at the narrows, and danger of getting into the maelstrom, for if a boat would get into that she would be drawn out of sight, instantly. The river was very high and after coming to a decision that it would be wise to wait for lower water I returned to camp on the Waitabit.

Mr. Knudson had broken camp and departed, but before leaving told me there was good fishing in Blackwater Lake, about twenty miles to the north, and that the old Tete Jaune trail was in a passable condition, and there would be no trouble in finding the place. Going there seemed a good way to pass the time, and besides it meant some sport.

Making up a small pack of provisions and cooking utensils, and with a small axe in one hand and my carbine in the other, but with no bedding, I struck out up the trail, and by nightfall reached the lake, a clear body of water nestled between steep mountain slopes. On the way up I was confronted by a small black bear, about two years old, which came blundering down the brush-encumbered trail. Neither one of us saw the other until about thirty feet apart, when we both abruptly stopped. The bear stood still an instant, eyeing me, and then turned off the trail into the timber, giving me the right-of-way. I could have easily killed it with my 45-calibre carbine, but had no object in doing so, and it departed unharmed. My success in fishing was poor. Two mountain trout was the extent of my catch, and after remaining overnight I returned to camp somewhat disappointed.

It was on the trip to Blackwater Lake that I first became intimately acquainted with the Columbia River Valley mosquito. They had not bothered me much heretofore, but now, of all the persistent, ferocious, and devilish pests that I ever encountered they are the worst. I had fought mosquitoes in the Mississippi Valley; in the swamps of Kansas; in the Rocky Mountains, where they breed just below the melting snow banks near timber line; and in Alaska and western British Columbia, and had always been able to stand their onslaughts—but not these. Placing both axe and gun in one hand, with the other

I fought as best I could, with no appreciable success, and had to submit to the inevitable. They come at their victim in clouds, and no sooner alight than their little drills begin puncturing the skin. Every puncture means a sting, and every sting leaves a white welt. My forehead, neck, and wrists became a mass of sores, which it was almost impossible to refrain from scratching. In most places where I have been if one is walking rapidly along a trail mosquitoes do not bother greatly, but on the Blackwater trail speed availed nothing—they could not be left behind. They seem to know when one is in trouble. The Tete Jaune trail is little used and is much obstructed with windfalls—trees that have blown down and often cross the trail in tiers of two and three in a place. Before reaching a windfall you have been followed by, say, a hundred mosquitoes, but as soon as you begin to climb over the obstruction, with both feet and both hands occupied, then their numbers increase tenfold, and by the time the obstacle is crossed you become almost frantic. I was compelled to admit myself defeated by the Columbia River Valley mosquito, and constructed a net to wear over my head and neck thereafter; and then found that I was not singular in doing so as everyone else resorted to the same protection.

I had other experiences with the mosquitoes, but the use of a net made them more bearable, and they were able to get only an occasional bite. After the middle of August they began to get scarce, and by the first of September ceased to bother.

Others have had experiences with these mosquitoes similar to mine. Below I give an extract from Stutfield and Collie's *Climbs and Explorations in the Canadian Rockies:*

> "The weather was very hot and sultry, and that evening a swarm of the most voracious mosquitoes we ever encountered drove us nearly crazy. The men said they had occasionally seen them more numerous on the prairie but never in their lives had they known them anything like so vicious or venomous. They lost no time in buzzing or fooling around, but went straight to business with their beaks until our hands and faces were a mass of bites. Nets, lotions, and "smudge" were of no avail; all we could do was to sit still and grin and bear it as well as we could and the night was one of unending torment."

There is but one good thing I can say about the mosquitoes of the North, and that is, that there appear to be no malarial carriers, or *Anopheles*, among them, for malaria is unknown in British Columbia. The name *Anopheles* is taken from the Greek and means useless, hurtful. This is their description: "A genus of mosquitoes which are the secondary hosts of malarial parasites, and whose bite is the usual, if not the only, means of infecting human beings with malaria."

It is claimed that the female mosquito is the only one that sucks blood, for it will not be fecund without it for food. The male mosquito feeds on the juice of decaying wood, as the female must do if no blood can be found. If there are as many males as females, how many uncountable millions of these pests must this earth support? Also, by what means or instinct do they so quickly, and from a distance, locate the food so necessary for the perpetuation of their species? I have landed on a dry sandbar, in western British Columbia, with no stagnant water anywhere near—no water except that of the flowing river—and not a mosquito would be present, at first, but in half an hour they arrived from somewhere by the hundreds and every one busily engaged in seeking my blood.

After my return from Blackwater Lake the weather became cooler and the River lowered about a foot and a half, and on July 5 I again walked across the Canadian Pacific bridge and down the railroad track to the lower end of Redgrave Cañon. At the west end of the bridge the Columbia River Lumber Co. had a camp and a spur track was being put in for their use. Here I again met Brede, who was working on the track gang; and I also had dinner in the lumber company's mess house.

On arriving at the narrows of the cañon it was evident that the River was considerably lower than at the time of my previous inspection, and conditions now seemed quite favorable for me to chance the first one of the real dangers that will thereafter be constantly encountered.

To prepare for the rapids, I had secured a piece of heavy canvas cut in triangular shape conforming to an end of the COLUMBIA. On one of its longer sides was placed a row of brass eyelets, or "grommets," the opposite side was folded over, to prevent tearing, and tacked to the outside of the gunwale of the boat. The grommets were then hooked over the head of nails driven in the gunwale opposite to the side tacked. The canvas reached from the stern six feet forward toward the bow, covering everything in that part of the boat. As I always placed the tent and sleeping bag in the stern, and as the latter was made up in a round bundle it arched the canvas upward sloping it like a roof. This arrangement was designed not only to keep the tent and bedding dry, but as I always run rapids stern first, to avoid straining my neck looking over a shoulder, and also to have the pathway ahead constantly in view so as to pull, quartering, away from obstructions, or bad water, any waves that would splash over the stern would immediately run back into the river and little would have a chance to get into the boat. Nowhere on my trip did much water come aboard except where a wave struck the boat fairly in the middle, and that was seldom.

I had planned every foot of the progress through Redgrave Cañon. The plan was this: to keep the middle of the channel until the narrows were approached, and then to barely touch the stream of frothing water that trailed away from the low, rock point on the right, and would give me fifty feet of clearance from the maelstrom on the left; and then slipping between the maelstrom and the eddy on the right glide into safe water immediately below them both. I knew that if I would get into the maelstrom it would mean "curtains" for me.

When I first met Knudson, in describing me, and not knowing my name, he had dubbed me the "Columbia Man," the appellation being derived from the name of my boat; and by that name I became somewhat generally known along the River.

Perfect strangers would stop, wave their hands, and call out, "Hello, Columbia." The rivermen were much interested in my undertaking and kept track of its progress as it was featured in the newspapers published in the various towns when I reached them.

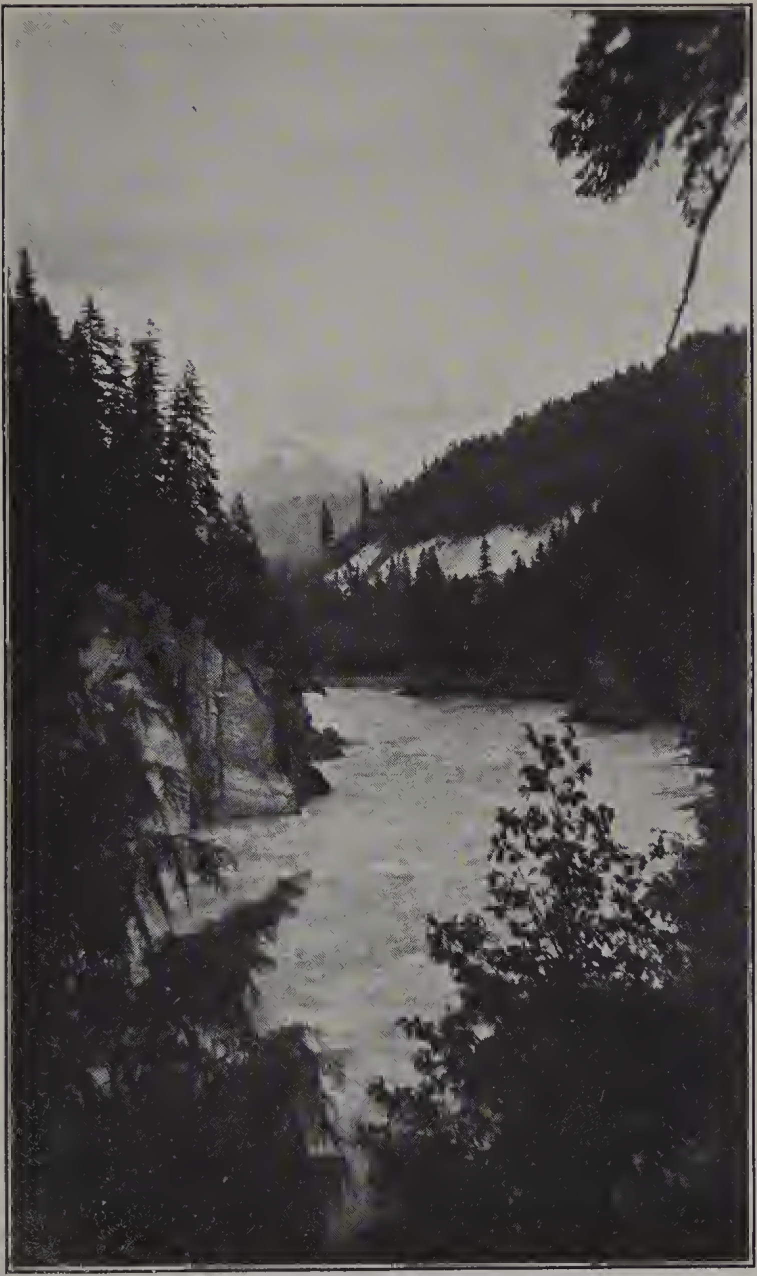
CHAPTER XI

FROM WAITABIT CREEK TO BEAVERMOUTH

On the morning of July 6 my tent was pulled down, the boat loaded, and I am ready to leave Waitabit Creek and "tackle" Redgrave Cañon. Has the reader the nerve to accompany me? If so, we'll be off. If not, stand on the railway track, just below the narrows, and watch what happens.

The plan I had formulated is adhered to. Turning the boat stern first, as the cañon is entered, everything goes well until reaching the narrow place and the point of the boat touches the rushing current on the right when, immediately, the left hand oar and its rowlock flew upward out of the socket, and without warning the COLUMBIA turned half way around with the bow down stream. The rowlock was tied to the gunwale with a stout line, and hastily replacing it I looked up quickly to see where we were with reference to the maelstrom. Not three seconds had elapsed between the time the oar unshipped and was replaced, and we were entirely past the place of danger and in safety. There was no more rough water for a mile and a half to Redgrave station and it was soon reached.

The little incident of the oar becoming detached at a critical time taught me a lesson. I did not want a repetition of the occurrence and decided to make it impossible. The rowlocks were of the U-shaped kind, of malleable cast iron, with a stem



THE "NARROWS" OF REDGRAVE CAÑON

fitting into a metal socket set in a block nailed fast to the gunwale. I had had the neck of the "U" closed just enough so that the oar could not be raised directly out of the rowlock but had first to be drawn inward about a foot before it could be released. About each oar, at its normal rowing seat, leather sleeves were tacked, at the upper end of which a collar, made of small cotton rope enclosed in leather, was also tacked around the oar. The rowlocks were then loosely tied to the gunwales with strong cords. This arrangement prevented the oars from being lifted up without taking the rowlocks with them, and there was no danger of either rowlocks or oars getting away.

The defect in the arrangement was the possibility, that at any time an uplifting wave would unship both oar and rowlock. What I wanted was some way whereby the effect of the wave would be nullified and yet the oar, and attached rowlock, could be instantly released at any time by the rower. This is how the desired purpose was attained. At the upper end of the rowlock stem is a small collar under the "U." I cut two strips of leather about six inches long and three inches wide, and in the center of each made a round hole just the size of, and into which, the metal stems were inserted, and the leather forced over each collar to a position just below the "U." The rowlocks were then set in their respective sockets and the attached leather strip was tacked, lengthwise, across each rowlock block, after which the rowlocks were tied to the gunwales, as before. So secured, whenever it was necessary, the oars could be withdrawn inward and removed, or, in case of emergency, a sudden jerk would pull the rowlock collar through the leather strip, and yet a wave had not the power to do so. Thus arranged I never again had trouble with the oars even in the roughest water.

Redgrave station comprises nothing but a siding and a section house. Here the section crew make their home on a small bench above the River. Landing at the foot of the trail that is used by the men to reach the River for water, I tied to the limb of a convenient tree, and walking down the railroad track two miles came to the head of Kitchen Rapids. The River was about 300 feet wide at the head of the rapids, and it was there that the bad features existed. On the right was the remains of a submerged dam that ran diagonally into the water and threw a strong current of troubled breakers clear across to the left shore. On the left side, not far from the shore and just above the breakers, was a large, flat, submerged rock with the water dashing madly over it and surging up and down with spasmodic regularity. It was plainly a case of lining down the left hand shore for at least half a mile. Below that was a swift current for another half mile, and some breakers which could be easily avoided.

After sizing up Kitchen Rapids I started to walk back to Redgrave. On the way down I had passed a red shanty on the River bank. It is known as the watchman's shanty. A man is kept here, constantly, at a salary of $125 per month, as a lookout at what is called "Calamity Curve," a curve of the railroad, near a short tunnel just above the shanty, where the mountain sides have a fashion of sending rocks down on the track. It is necessary for the watchman to visit, and inspect, Calamity Curve just before the arrival of each train; and if any obstruction is on the track too large for him to remove he must place torpedoes on the rails to stop the train.

As I repassed the watchman's shanty I met the watchman himself, Mr. August Berlin, who urged me to camp in his cabin overnight, as he intended to go to Golden that evening for provisions, but would return before morning. I agreed to the proposition, brought my boat down from Redgrave, tied her up at the shanty, and cooked my meals on Berlin's stove. The place was a two-room affair and I slept on a couch in the front room.

I have frequently used the term "lining" in this narrative, and as it will soon have to be resorted to, I will endeavor to make clear to those unfamiliar with it what it is. It is called by the French-Canadians "cordelling." The derivation of both terms is plain—the use of a line or cord.

In navigating against a swift current, too strong to be overcome by rowing or paddling, the canoe, rowboat, batteau, or whatever watercraft used, is taken up stream in this manner: a strong rope, usually a hundred feet in length is tied, at one end, to the bow; one, two, or more men grasp the free end of the rope, and, walking along the shore, tow the boat after them, which, as she has a constant tendency to come ashore, requires the attention of an additional man carrying a pike pole. The pike pole is from 12 to 16 feet long and in its larger end is a sharp metal point, and sometimes a hook. With the pole in his hands the additional man walks on the shore, alongside the boat, and sticking the sharp point into her at the bow forces her outward and holds her offshore as he walks. Sometimes the water is so shallow near shore, or so cluttered up with rocks, that it is necessary for all hands to wade to get outside of obstructions. Rubber hip-boots are generally worn when lining, although some men prefer to do their wading in leather footwear.

It is possible for one man to line a boat upstream. This is done with a shorter tow rope, and by using what is called a "bridle," which means that a short piece of rope is fastened about one-fourth of the way back from the bow and its other end secured to the tow line not far in front of the boat, so that the two ropes will form a —< which is adjusted in such way that its rear arm takes the pulling strain and will incline the bow outward giving her a tendency to cut diagonally into the current. At the same time the boatman must carry a light pike pole in one hand and occasionally shove out the boat which, at times, persists in coming ashore. He will also, sometimes, have to resort to wading, and then grasps the boat at the bow and drags her, as at such times the tow line is a hindrance rather than an aid. This is slow and tedious work, but it can be done. At one time I alone lined a twenty-foot boat upstream with a bridle, twenty miles, and was only prevented from going farther by a cañon where the walls were too high and steep for lining. My rate of progress was generally two miles a day, but occasionally when the going was good I made three miles.

Lining down stream is just the opposite of the method used in going upstream. The boat is kept pushed off shore with the pike pole, the current carrying it down, and the boatman holding fast to the tow line. For one man to line down stream is about as tough a proposition as anyone wants to undertake, for in spite of everything he can do, the boat is constantly against the shore, her sides grinding on the rocks. In the rapids there is always a side swell from the violently agitated water in the channel, which produces a surf like that of the ocean, although on a smaller scale, and this has a serious effect on the sides of the boat or canoe if she can not be kept off shore.

The first night I passed in Berlin's cabin, a Mr. Seward, one of the section men, came down from Redgrave and acted as watchman. I remained three nights in the cabin, and still Berlin did not return; and becoming impatient at his continued absence, on the morning of July 9 I got ready to depart from the place. Mr. Seward was still performing the watchman's duties, and as he had ample time between trains, agreed to help me line past the bad places in the rapids below. I could have done the work alone, but as two men can line better and more easily than one the offer was very acceptable. We started out together and got safely by the worst places, although at one section, on account of numerous rocks that had rolled in the water from the railroad embankment I was compelled to remove the boatload, carry it a quarter of a mile, and drop the boat down empty. Re-loading, I parted from Mr. Seward and getting aboard the boat shot the

Kitchen Rapids at Curve on C. P. R.

lower end of the rapids without difficulty, and by 3 o'clock P. M. was at Beavermouth, and went into camp on a grassy flat, at the mouth of Quartz Creek, and near the remains of a sawmill that had burned down—the flat being littered with charred timbers, twisted iron rods, and rusty boilers. This is the best camp ground I had so far on the trip, being shady, dry, clean, comparatively free from mosquitoes, with good water within fifty feet of the tent, and plenty of firewood available from the old mill.

CHAPTER XII

From Beavermouth to Kinbasket Lake

Beavermouth is a small place, where the locomotives are kept that are used as "helpers" to get trains up the steep grade to the summit of the Selkirks, to the westward by way of Beaver River. The railroad then descends by way of Illecillewaet River to Revelstoke, also on the Columbia River, but on the opposite side of the Big Bend from Beavermouth, where the Big Bend commences.

Beaver River joins the Columbia, on the left, about a mile below the railroad station. The hamlet, if it can be so called, is a scattered place, on both sides of Quartz Creek, and is on a low flat about a quarter of a mile wide, extending south from Beaver River about a mile and a half. The depot is on the north side of Quartz Creek. The place consists of the usual side track, the station house, a four-stall engine house, a few dwellings for housing the few employees, a makeshift store and post office, and two farm houses over against the foot of the mountains, on the west. It was here that Mackenzie and Mann, noted Canadians, laid the foundation of their fortune at the time the Canadian Pacific Railway was being constructed, and the ruins that are on the flat, near my camp, are what remain of the sawmill that they used at the time.

At the time of its construction, in the eighties, the Canadian Pacific Railway was made to climb west-

Looking Up Beaver River

ward to Rogers Pass, and then descend toward Revelstoke, by means of a series of surface loops, and with many snowsheds. At a cost of $12,000,000, the summit section has since been replaced with a double track tunnel south of Rogers Pass, and under Mount Macdonald. The tunnel is just five miles long, three-fourths of a mile longer than any other tunnel in America. The new line lowers the summit elevation 539 feet, cuts out several loops and about four miles of snowsheds, eliminates much curvature, and shortens the line about four and one-half miles. The tunnel itself is on a tangent. The maximum gradient across the Selkirks is 2.2 per cent, compensated for curvature.

The section of the Selkirks westward of Mount Macdonald has a scenic reputation almost equal to that of the Rockies, and is called the "Canadian Alps." The principal tourist station is Glacier, near the head of the Illecilliwaet River.

The Columbia River was very high when I reached Beavermouth, and as the camp ground was good, and besides I wanted to see J. F. Nattress, Fire Warden for the district ending at Surprise Rapids with headquarters at Beavermouth, but who was away in the Selkirks attending to his duties, Beavermouth seemed a good place to kill a little more time.

After waiting four days I learned that Nattress was back, and called on him at his camp, a boat-house on the bank of the River. He gave me a good deal of useful information and showed no tendency towards exaggeration. He had run the rapids of the Big Bend a number of times, and promised to go down the River with me to Surprise Rapids after returning from a visit to his home at Golden.

In the meantime I had no way of keeping occupied and as I had lost a pair of spectacles on the Blackwater trip and thought they could possibly be found; and as there would be also an opportunity to again do some fishing, probably with better success than before, I conceived the plan of going once more to Blackwater Lake, but this time by a different route.

Blackwater Lake is almost directly east of Beavermouth, beyond the mountain spur that ends at the head of Redgrave Cañon. My plan was to row across the River, tie up the boat and leave her, climb up over the mountain and down the other side and intersect the Tete Jaune trail, and then follow that to the lake. Making up a light pack, as before, and without blankets, I followed the route outlined, reached the lake before dark, and went into camp in the old trapper's cabin at its lower end. I spent two nights at the cabin, caught eleven trout, but did not find the spectacles. Instead of returning the way I had come it seemed wiser to keep on the trail, back to Donald, and then follow the railway to Beavermouth. On my way across the mountain I had had a tough time getting through the brush and windfalls, and did not want to repeat the experience.

My supply of "grub" had given out, but fortunately, I shot a grouse with the carbine, cooked it for lunch, and by dark reached Redgrave, literally exhausted and sore in every joint, having walked 28 miles, much of the distance over brush and log encumbered trails, with the mosquitoes devouring me at every step. The section foreman took me in for the night, and in the morning, refreshed, I continued down the railroad track to Beavermouth; visiting on the way August Berlin at Calamity Curve, who told me he had returned to his cabin the night of the day I had left. He is a whole-souled, friendly Hollander, and when he reached Golden, after being so long alone in his cabin, he simply had to have a good time.

Up to the time when I reached Beavermouth, no one had seen my boat, COLUMBIA, except a few persons at Invermere, Athalmer, and Redgrave, and Knudson at Waitabit Creek, and these made no comment about her, but at Beavermouth she was much criticized—many thought her too small to withstand the rapids. But I was satisfied with her, knowing how a boat of her type would act in rough water, and also considering her heavy enough for one man to handle, especially if he had to make portages alone. The fact that the COLUMBIA reached Astoria without a mishap, and in good condition justified my confidence in her.

The early voyagers in British Columbia used either a batteau (a large, heavy, double-ended boat), or an Indian canoe made of split cedar boards, or dug out of a log. Today, the favorite water-craft is the Peterborough canoe, made at Peterborough, Canada. These are beautifully built on graceful lines, with high, curved bows and sterns, and are very expensive. They are of different sizes, but the size commonly used is 20 feet long, 4 feet beam, and weighs 250 pounds.

I am not particularly impressed with the Peterborough, but prefer something of the type I had made. The faults I find with them, are, first, the bottom is too straight, longitudinally, and for that reason they do not quickly respond to oars or paddles, and, second, their thin, rounded sides will not stand much buffeting against the rocks, and are easily punctured. If I had attempted to line a Peterborough down Kinbasket Rapids, without assistance, as I did COLUMBIA, by the time the lower end was reached it would have been damaged beyond satisfactory repair.

I waited at Beavermouth until July 21, but Mr. Nattress did not return from Golden. I had been told that there was good fishing in two lakes at Bush River, twenty miles down stream, and I decided to go there alone, do some fishing in the lakes, and await Mr. Nattress' arrival, and I set out on another leg of my journey. The River had been contracted from the head of Redgrave Cañon to Beavermouth, but now widened rapidly, had a swift current, but no obstructions, and in a short time I was at Bush River and made camp on its bank just above the mouth. Bush River is a good sized stream heading at Bush Peak, in the Rockies; at its lower end it traverses a considerable valley, and is about 400 feet wide where it enters the Columbia. Two miles above its mouth are two lakes connected with the river by a winding channel about two miles long.

I spent the balance of the day in the vicinity of my camp, trying to catch fish in Succour Creek which joins the Columbia immediately above Bush

Mouth of Bush River

River, but had no success. The next morning, with an empty boat, I rowed the two miles up Bush River against a rather stiff current, and then wound my way up the crooked outlet of the lakes. Fishing all day, without even getting a nibble, I returned in disgust to my camp. The place was a hotbed of mosquitoes, and in the morning I broke camp, and with four miles of good going reached Surprise Rapids.

Just above Surprise Rapids the Columbia doubles its width and has little current. At the head of the rapids the channel narrows to a few hundred feet in width and is against the left shore. The water slides gently over the crest with little noise—although a short distance below the violence of the breakers makes a roar that can be heard a half-mile through the timber. It is the peculiarity of the approach to Surprise Rapids, and the unexpectedness of the sudden drop-off after the calm river above that caused it to acquire the name it bears. It is the roughest and longest continuous piece of bad water on the whole Columbia River. Rowing down to near the crest, where there is a tumbled-down cabin on the left bank, I "sized up" the situation, and then returned, upstream, a quarter-mile, to the head of the portage on the right-hand shore.

After the tent was up and lunch prepared and eaten I walked down a good trail to where some civil engineers were stationed a mile and a half below the head of the portage. Here I found two large log cabins, an office and bunkhouse, and a cook house, and met Mr. H. E. Smith, the engineer in charge and his assistant Mr. Mackenzie. They had been stationed here for some time, gauging the flow of the Columbia, and gathering other useful engineering information. A short distance above their camp a wire cable is stretched across the cañon, carrying a suspended car running on grooved wheels and operated by man power; and used by the engineers for reaching the other shore. It is high above the madly rushing water beneath.

It is proposed to erect a dam 150 feet high at the lower end of Surprise Rapids for the purpose of developing hydro-electric energy. With an available working head of 130 feet it is estimated that 36,000 horse-power will be obtained. This power is to be mainly used to take trains over the steep grades in the Selkirks between Beavermouth and Revelstoke; and will mean the abandonment of the use of the present helper locomotives, and a consequent diminution of what little activity now exists at Beavermouth, but should have little effect upon Revelstoke.

The place where the engineers had established their camp is on a bench above the River, in the midst of heavy timber, and with a spring nearby. My camp at the head of the portage was exposed to the glaring rays of the July sun, and unbearably hot. The only water available was from the turgid Columbia. I decided to move to the more favorable location, near the engineers, and with the aid of a pack-bag, which Mr. Smith loaned me, the outfit was carried down the trail and the tent reset near the cabins. The COLUMBIA was left behind for future transfer.

The contracted, rock-strewn channel, and great breakers of Surprise Rapids have about as evil a reputation as has Death Rapids. It is about as dangerous to navigate and is much longer, having a total length of three miles. The roughest section is the first mile and a half, and is generally portaged, although a crew of men, working together, can line it—something that would be exceedingly risky for one man to do. However, Alphonse Emond, whom I met later, told me that he had run the whole rapids at a low stage of water, in a specially built, wide boat, in which he took down a piano. The boat filled with water three times but did not upset, and got safely through. Jerry Nagle, whom I met at Revelstoke, claimed that he attempted to run an empty batteau down Surprise Rapids unaided, and got along well until a large submerged rock was reached, when the surge of the water threw the batteau across the rock and as she fell, on the lower side, she collapsed with a report like a cannon, and closed up like an empty pea pod. Shallow water below the rock was all that saved him, into which he jumped and held the boat until his companions, who were carrying the load on shore, came to his assistance. The batteau was repaired and they were able to continue their journey.

Just below the engineers' camp a log jam juts out about 200 feet from a point on the right bank. This deflects the current to the left and it turns around the end of the jam in terrific shape with great, rolling breakers. Below the jam, for a mile and a half, to the foot of the rapids, there is an exceedingly swift current with high, long, rolling billows (the greatest on the River), but no breakers.

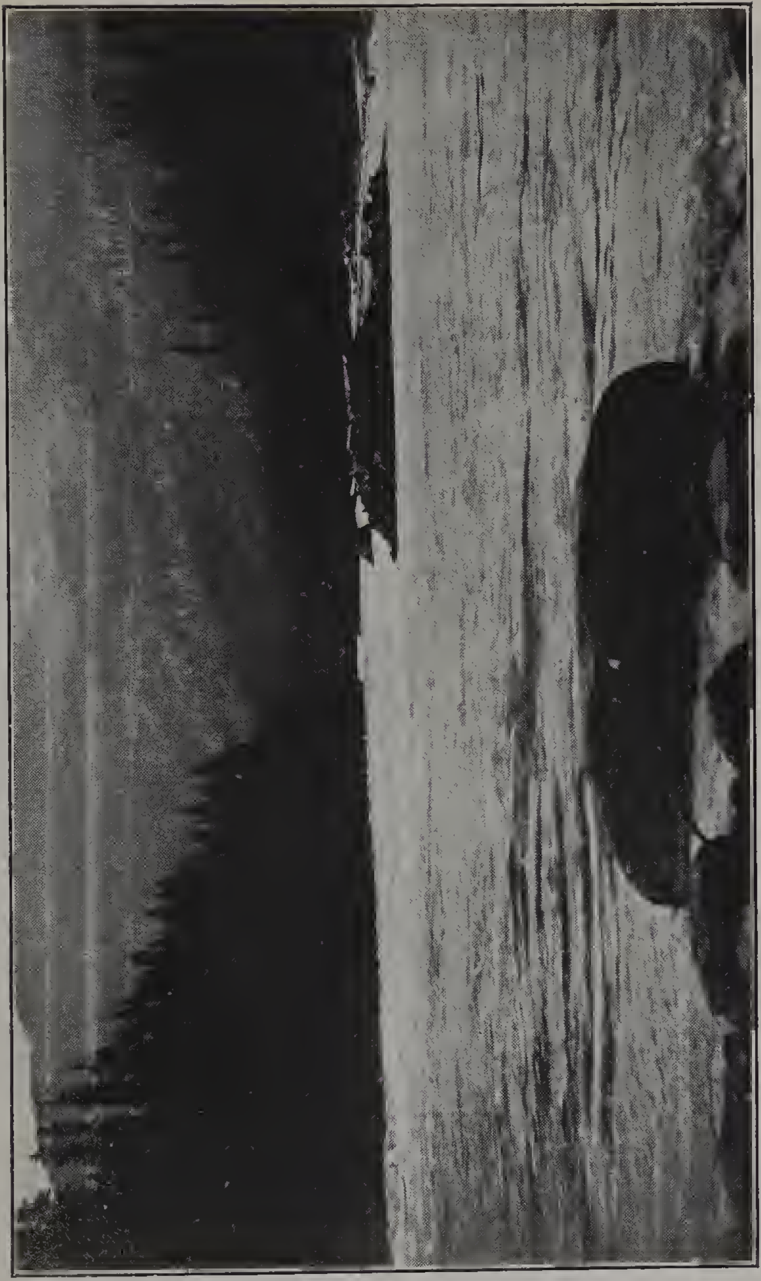
Mr. Nattress had not yet made his appearance, and Mr. Smith had told me that Alphonse Emond, Fire Warden for the district as far down as Canoe River, was down the River and would soon be back. I wanted to see him and also wanted to have my boat portaged to the log jam, as I was advised that the rapids below could be run. I met Mr. Emond on July 27. In the meantime Nattress had arrived, with his son Howard and Lewellyn Humphreys, a boy friend. Going to where the COLUMBIA had been left, we rigged up a "gee-pole" at her stern; and with Emond, Nattress, and the boys hauling on the tow line, and with myself at the stern, guiding with the gee-pole, in an hour's time we dragged the boat over the trail, and launched her just above the log jam.

Mr. Emond was on his way to Revelstoke to bring over a new canoe—he had left his regular canoe at the foot of the rapids when he came upstream. He posted me about the River all the way to Canoe River, but advised me to wait until his return and said he would go down with me as far as Kinbasket Lake. He also advised me to carry my outfit and move camp to the mouth of Foster Creek, a small stream one and one-half miles below, as it would be safer to run the remainder of Surprise Rapids with an empty boat. Putting this advice into effect I carried everything down a good trail to Foster Creek and encamped there. On my last trip I stirred up some mountain grouse on the trail, but had no gun with me. Reaching the camp I got the shotgun, returned to where the grouse were seen, found them still there and got three of them.

These were the first grouse I had killed since shooting the one on Blackwater trail, and that evening I had a nice "mulligan" for supper.

For three days I walked back each morning to Smith's camp, to see if Emond had returned, but he did not come, and getting impatient, as usual, made up my mind to run Surprise Rapids alone. At the log jam, below the engineers' camp the breakers were too violent to undertake rounding the point, although it could have been done if my boat had been launched farther up stream and a quick crossing made to the left side, steering clear of the point. As it was she had been dropped into the eddy just above the jam, not allowing enough distance in which to make a run for the other shore. The jam is about 12 feet high and 50 feet across, and just below the water is shallow and quiet. With the help of Mr. Smith the COLUMBIA was dragged over the logs and launched in the quiet pool below.

Parting from Mr. Smith, I again started on another leg of my journey. Getting out of the quiet pool and into the current, I found great sweeping waves, but as the channel was clear whitecapped breakers were absent. The current descends the middle of the River, with high crests and long sloping sides towards each shore. Running down backwards, and maintaining the boat on the right hand side of the waves by keeping her bow pointed diagonally upstream, towards the crest by constant movement of the oars, although she was tossed about like a cork, it seemed impossible to upset her, and I rode safely—it was the best test of the qualities of the COLUMBIA I had on the trip. In a



Looking Up Surprise Rapids at Log Jam

short distance, in rounding a point on the right, I came suddenly upon a slender shaft of rock about 70 feet high, directly in the middle of the River. I had been advised of this and told to keep the right hand channel, but the current drew so strongly to the left, and the column was so close when first seen, that although I tried I could not make it, and as the left channel was clear, I shot by the rock like an arrow, and it was soon out of sight. Nothing else occurred except that near the foot of the rapids a "suckhole," or miniature maelstrom formed under the boat just as the place was reached, but the speed with which we were traveling shot us clear across it, the only result being that the whirling place broke with an up-boil just as the middle of the boat reached its center, and about a gallon of water dashed aboard and gave my side a slight wetting. Soon we were at Foster Creek. I landed, got lunch, loaded the boat, and continued the journey.

About 15 miles below Foster Creek Sullivan River, a fair sized stream from the Rockies, was reached, and two miles farther I came to Kinbasket Lake, a mountain-locked body of water with steep, rocky shores. It is eight miles long and a mile and a half wide in the widest place. I rowed down the left hand shore until opposite Middle River—which, as its name indicates, enters the middle of the lake from the east—when a sudden storm of wind and rain arose, coming directly up the lake. It was impossible to make headway against it and I was forced to go ashore at the only available landing place, a small, rocky point under a steep bluff. Here I made the boat secure as well as I could against the rolling surf the wind had caused, but she constantly chafed against the rocks on the shore, and fared badly. There was no shelter except the foliage of a small cottonwood tree, and under it, with the rain dripping on my back, I got what supper the conditions permitted.

After eating I looked around for a place to sleep, and glancing upward saw on the left side of the cliff, and not far above, a three foot shelf slanting uphill at an angle of about fifteen degrees. The cliff overhung it and it was dry and protected from the wind. Someone else had evidently used the shelf as a sleeping place, as there was a six inch log about sixteen feet long, and denuded of limbs, lying on it. The place was thickly covered with cottonwood leaves and looked attractive, as there was no possible place to set up a tent. Climbing up to the ledge I placed the log on the outside of it, against a tree at one end, against a rock at the other, to keep myself from rolling into the lake, twenty-five feet directly below. Scraping the leaves together to make them lie uniform, I uncovered the skin and skeleton of a porcupine which I cast into the lake. Having adjusted everything to my satisfaction I brought up the sleeping bag, crawled into it, had a dry bed and sheltered and fairly comfortable resting place; although the odor of the porcupine persisted throughout the night.

Arising early in the morning I found the rain had ceased but the wind was still blowing too strong to contend against. I waited until ten o'clock until it was calm enough for me to venture on the water, and then, in still high-running whitecapped waves I

Emond and Knudson at Kinbasket Lake Cabin pulled across to the right hand shore, reaching it just below the mouth of Middle River. I had no sooner gotten across than the wind ceased entirely, and it was not long before Emond's headquarters, at the foot of the lake on the right hand side, was reached. I landed and took possession shortly before noon, August 3.

The cabin was a good sized one of logs, setting about 200 feet back from the shore, with one room containing two bunks, a good sheet iron stove, a table and chairs, and in one corner a large cedar box filled with provisions of all kinds. Cooking utensils, snowshoes, clothing, a 3A, folding camera, and a rifle were hung on the walls; and steel traps and tools of many kinds were under the bunks. Just south of the cabin a fine little stream of pure water came tumbling down the mountain side into a wooden trough leading to a tub formed from a half-barrel. Everything was neat and orderly, and here I intended to remain until Emond's arrival.

CHAPTER XIII

FROM KINBASKET LAKE TO THE FERRY

On August 5, about midday, I noticed two Peterborough canoes, each with an occupant, coming down the lake from the south. As they came nearer I saw that the man in the larger canoe was Emond, and that Casey Knudson was in the smaller. With Emond were two Airedale dogs. When they landed I learned that the larger canoe was one that Emond had had for some time, and that she was twenty feet long; the shorter one being an eighteen-footer, much narrower than the other, and had just been purchased.

Emond had brought Knudson with him to fight a fire that lightning had started in the timber, in the Selkirks, a short distance above the head of Kinbasket Lake. A like fire had broken out on the left hand side of the River just below the lake, but Emond already had that under control; Knudson did not remain but shortly returned, up the lake, in one of the canoes.

The next day Emond suggested that I go with him, down the trail, to what is called "The Ferry," twenty-five miles below the Kinbasket cabin. He had arranged to meet there Mr. Melrose, his superior officer, who was making the rounds and coming down Canoe River with canoemen. As this would give me an opportunity to acquaint myself, somewhat, with Kinbasket Rapids—which begin at the

Alphonse Emond and His Canoes

lower end of the lake—I agreed to the suggestion. Making up two twenty-five pound packs of bedding and food, accompanied by Emond's dog Fannie and her year old pup Jack, we started at noon and following a rather rough and brushy trail; after walking a distance of nine miles in three hours, we reached Cummins Creek and stopped for the night in a small cabin Emond had there.

The next day we went to the Ferry, sixteen miles from Cummins Creek, arriving early in the afternoon. Here there was another good-sized, furnished log cabin. The place is called the Ferry because at one time a pack-trail existed from Revelstoke along the west side of the Big Bend to its northern end, then turned eastward crossing the Columbia a short distance above the mouth of Wood River, and then followed Wood River to Athabaska Pass. The crossing of the Columbia was with a cable like the one described at Surprise Rapids. The cable is still usable—Emond and I crossed over on it to the still standing, but dilapidated log house at its west end—but the trail has long since become overgrown with brush and is now disused. A cable-tender was formerly stationed at the Ferry.

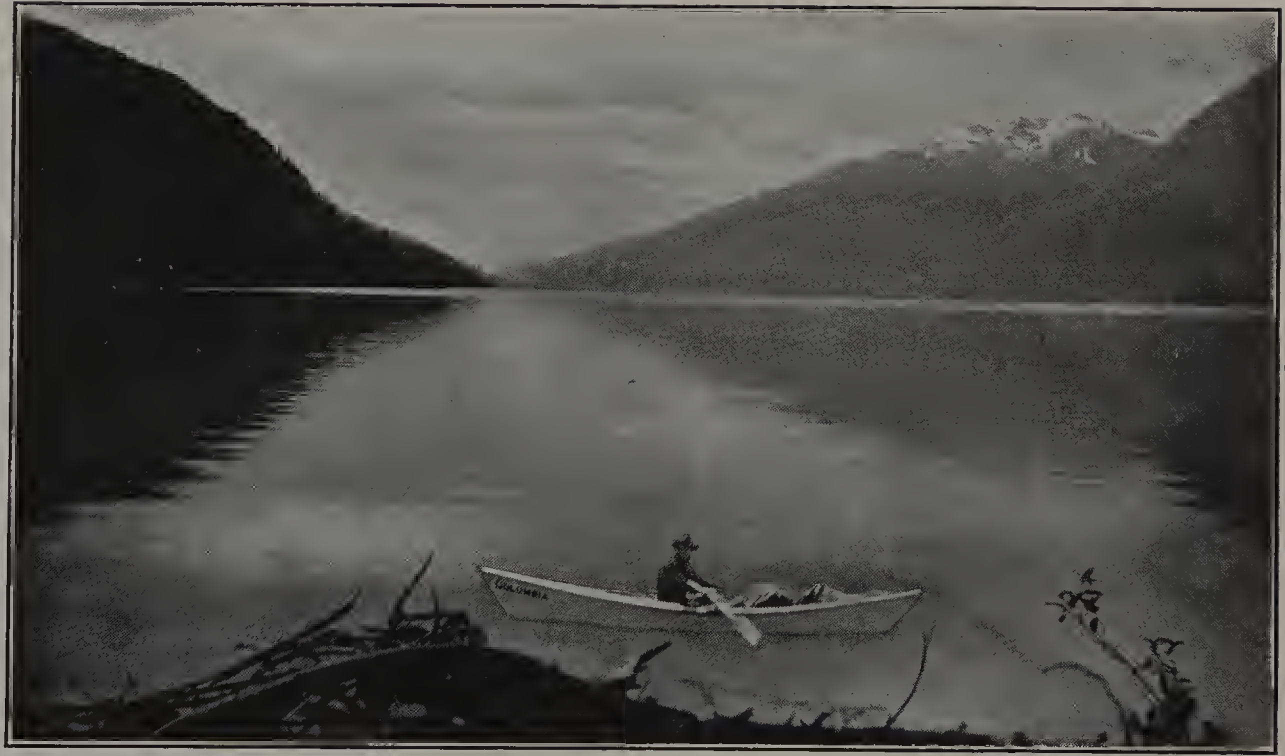
The cabin Emond and I occupied is on the east side of the River about a quarter-mile above the cable. I remained there but one night. The days had become considerably shorter, the weather had turned cooler, and the Columbia, at last, showed signs of receding. The time seemed at hand for me to prepare to make a regular and continuous descent of the River, if its condition and the frequent rains permitted.

Leaving Mr. Emond behind, I shouldered my bedding and hiked the back trail to Kinbasket Lake, reaching Cummins Creek by the middle of the afternoon, just ahead of a driving rainstorm, and put up for the night. Leaving in the morning the brush-lined trail was still saturated with moisture from the recent rain, and long before the lake was reached I was wet to the skin from head to foot. This, with the fact that the three days' steady hike had tired me considerably, made me determine to rest up a day before running the twenty-three miles of rapids I had before me. I wanted to be fresh for the ordeal.

Between Kinbasket Lake and the Ferry there are fifteen separate rapids—seven from the lake to Cummins Creek; one at Cummins Creek; one at Yellow Creek; and six below Yellow Creek.

I consider Kinbasket, or Twenty-three Mile Rapids, at time of high water, the most trying section to navigate of the whole Columbia River. Not because they are the roughest—although they are rough enough in places—but because of their length and continuity. They are the longest on the River, the next being Priest Rapids, in the United States, but which do not compare with them for violence.

The lake had fallen about a foot, and on August 11 I looked, for the last time, at the Kinbasket cabin, pulled across the short stretch of water to the foot of the lake and slid quietly over the crest. The Columbia is about 300 feet wide on leaving the lake, and the first "take-off" of the swift water is



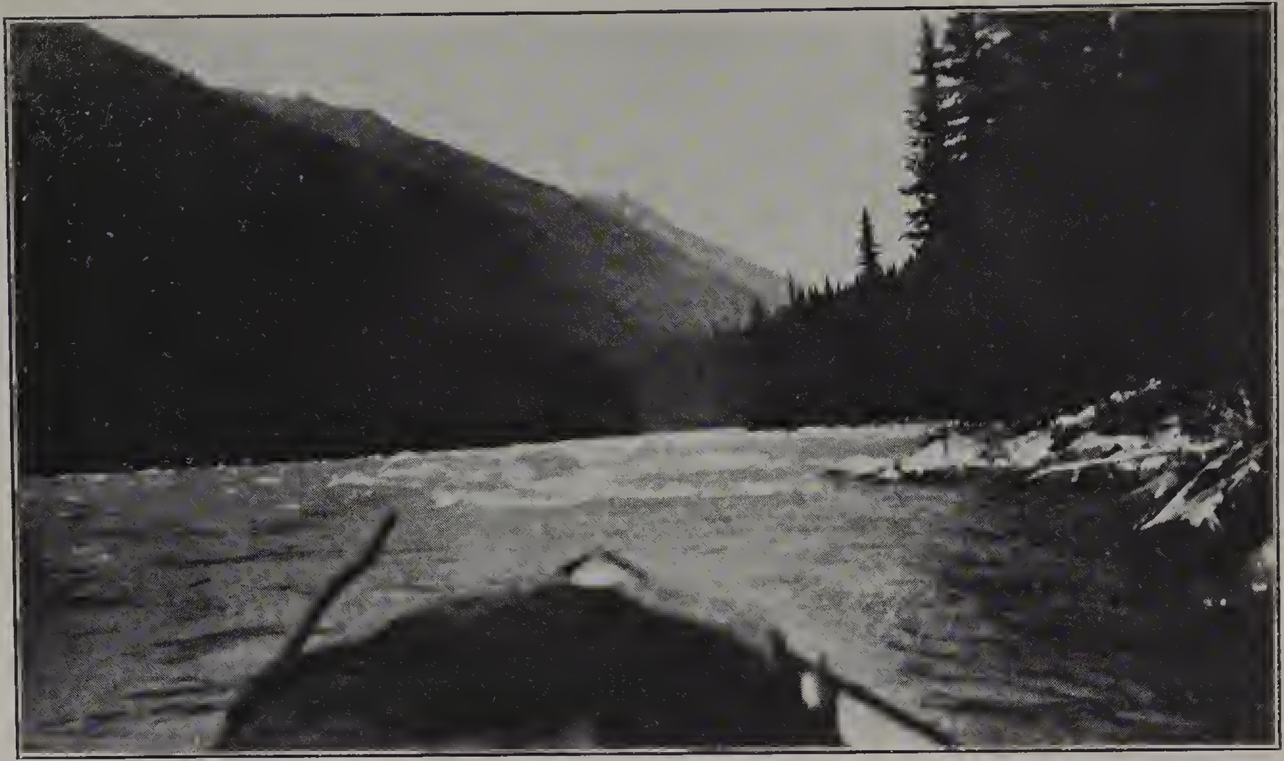
Kinbasket Lake, Looking South

easy, merely gliding down a smooth flowing incline. I did this in the usual manner, stern first, but in three-quarters of a mile had to go ashore on the right—the River was contracted still more than above, and there was a vicious rapid below.

There is almost always a contraction of the channel at the head of rapids with a sharp descent below. The rapids are caused by either submerged or protruding rocks over, or against which the swiftly moving water dashes and throws upward great froth-topped waves, breakers, or combers. When the rocks are numerous and close together navigation is dangerous, as it is almost impossible to guide a boat so as to miss them all. When they are widely spaced, with sufficient breadth of channel between them, even though the combers are large, the skilled boatman can weave his way safely through them. The experienced whitewater man knows just what to venture and what to avoid. If the rapids are too rough to run they can often be lined. Usually the thrashing water is near the middle of the stream, but sometimes it is along the shore, in which case portaging, or carrying both load and boat is necessary. The contraction of the channel at the head of rapids and the obstructing rocks below act to dam up the current above, retarding it so that there the navigator generally finds slack water, or an eddy, in which to put ashore and make an examination of what is ahead of him—the size of the breakers and the roar they make giving ample warning to go no farther until investigation is made.

The rapid I had reached was plainly too rough to run, and after making the landing I walked down its length along the rocky right hand shore and determined that it was a case of lining for a full mile on the side I had followed. Returning to the boat I dropped her down in the current, holding the towline in my left hand, and with the pike-pole in my right hand kept her offshore as best I could, but she persisted in coming inshore and grinding against the beach. It was slow and difficult work partly because of numerous overhanging limbs in the way of free action, and which had to be removed by cutting with the axe. But I finally reached the end of the lining and came to smooth flowing water—but not for long for just below was another equally vicious rapid. I examined this and it also had to be lined for its full length. I negotiated it successfully, but when through the day was about spent, and I had made only about two miles after a hard day's work.

It was necessary to find a place to spend the night. There was no level ground only the sloping, rocky beach with steep timbered hillside above, and I had, perforce, to make a bed of some kind. First cooking a meal on the rocks I found the smoothest place there was, close up under the timber, making it smoother by removing the larger stones and placing them on the lower side to form a kind of trough. Then cutting spruce boughs to lay in the hollow, spreading the sleeping bag, into which I crawled with my guns within reach; with the swift flowing, rock-tossed River at my side; and with no other shelter than the thick, drooping branches of a hemlock tree, beyond the ends of which shone the clear, starry sky above the glaciated summit of the Selkirks. A momentary appreciation of the grandeur



One of the Kinbasket Rapids

of the surroundings and then I sank into the deep, untroubled sleep of the weary.

The next day I lined three raging rapids, keeping down the right hand shore as it presented the least difficulties.

The second rapid was different from the rest. Near its lower end is a long, sweeping curve to the left; the River widens and forms a bay of shallow water thickly strewn with rocks. There is little current near shore but the rocks are too numerous to permit passage, and the deep channel is too boisterous to run. My only recourse was to get well out from the shore where there were fewer rocks and deep water. To do this I must wade, and plainly, an empty boat was the only thing that could be handled. It was a quarter-mile to the foot of the bend, and I unloaded and carried everything there. Then I removed all clothing except a shirt, and as rubber boots would be useless in deep water, and one cannot keep his footing barefooted on the wet, slimy rocks I put on my leather, hob-nailed boots and waded away from the shore dragging the boat after me. It was a hundred feet out to where the rocks were sufficiently scattered to get through them, and the water was up to my armpits. By alternately dragging and lifting I was able to get the boat to where the luggage was piled, but not until I had, many times, slipped and floundered, immersed to the chin, but regaining my footing as I clung to the boat. This is the only place on my trip where I regretted not having a companion with me—merely for the purpose of taking my picture. I must have been an interesting looking object, ridiculously clothed, tugging, hauling, and slipping around, almost submerged. The water was cold, fresh from the glaciers, but had no serious effect upon me, and after putting on dry clothing, drinking some hot coffee, and eating a little lunch, I was in good shape and continued on my way.

There was another rapid requiring lining, but with no exceptional features, and the afternoon was about three-fourths spent when I reached a place where someone else had camped, as was evidenced by charred sticks and empty cans lying around. The place was a small low flat on the right hand side of the River, and as it was doubtful if another favorable place to sleep existed farther down stream, I stopped here and made camp, in the open. During the day I had cracked an oar using it as a lever, and the old, empty tin cans left by the previous campers were just the things I needed to mend it with. Finding a suitable one I cut it to form a sleeve and tacked it tightly around the break, making the oar fairly serviceable. The second day I made better progress than on the first. I had lined three rapids, come three miles, and was now five miles below Kinbasket Lake.

Getting an early start the next morning I found the River less turbulent, and with only one rapid to line, before noon I reached Cummins Creek, four miles from my last camp. Here I landed just above the mouth of the creek.

When going down to the Ferry with Mr. Emond we dropped off the trail to investigate the River at the mouth of Cummins Creek. There, leaning against a tree, I had seen a pair of nine-foot cedar oars, and a canoe paddle. I wanted one of the oars to replace the mended one, which might fail at any time. The oars were on the lower side of the creek where it was impossible to make a landing, and the creek was too large to ford. So, I walked up the upper side, through the timber, to where there is a bridge, crossed it, and then going down the opposite side got an oar and the paddle. As it was almost noon, and as there was no place at the boat to do cooking, I followed the trail up the creek to the trapper's cabin, a quarter-mile from the River, where I knew there was a supply of food and a good stove to cook on, and there prepared a lunch.

Cummins Creek is a large, torrential, glacial stream and hurls a great volume of water into the Columbia River from the Rockies. The amount of water and its velocity is so great that a rapid is created, reaching almost across the River, and extending down stream for a half-mile.

I shoved my boat away from the bank at the head of the rough water, and hugging the left hand shore, where there was the least commotion, I was able to "shoot" the first rapid that I had completely run since leaving Kinbasket Lake. There was good going, thereafter, all the way to just above Yellow Creek, seven miles below Cummins Creek, and I made the distance by the middle of the afternoon.

Yellow Creek enters the River on the left, the Selkirk side. Immediately opposite, coming from the Rockies, is a small, clear stream, which has built up a low, rocky point extending into the River about two hundred feet, and is about three hundred feet wide. There is a rapid above Yellow Creek which rounds the low point with great velocity and turbulence—the most agitated place I had yet seen. On the right hand side, above the point, was a bay of quiet water. Mr. Emond had advised me to drop down into this bay and make an examination before trying to run past Yellow Creek. I followed instructions and found that from where I landed the distance was too short in which to avoid the turbulent water at the point—the condition was similar to that which existed at the log jam at Surprise Rapids. Had I made a start about a thousand feet farther upstream a crossing to the Selkirk side could have been safely made, and continued on past, and close to, the mouth of Yellow Creek.

However, it was too difficult to go back upstream, lining down was too risky, and there was, apparently, nothing else to do but make a portage across the point, and I began to carry my dunnage over. While doing this I found a fine, grassy place for a camp—there was good water in the little creek, and ample wood for a fire. It was early yet, but the place appealed to me after the other unfavorable camping places I had had and, besides, I wanted time to shape down the oar picked up at Cummins' Creek—I might have urgent need for it—and it would also take some time to drag the COLUMBIA across the point. Finishing carrying the dunnage, I immediately got busy with saw and spokeshave reducing the cedar oar to the dimensions of the broken one. By the time this was done, and supper prepared and eaten, it was late, and I deferred getting the boat below the point until morning. Had I known it, and completed the portage immediately on arriving, I could have reached the Ferry, nine miles below, by nightfall. As it was I had made eleven miles on my third day in the rapids.

On examining the River in the morning it was evident that it had risen a foot over night. On the previous afternoon, just below where I landed, was a small, rock-strewn channel, nearly dry, but now it contained ample water so that by wading, and maneuvering the boat around the rocks she could be taken across the point, and below all dangerous water. I put this plan into execution, landed in quiet water, and ten minutes later had everything loaded.

There are six rapids between Yellow Creek and the Ferry, and of these I lined only a part of the first, at an exceedingly bad place at its lower end for about two hundred feet. The breakers here sweep diagonally across the River and impinge on the right hand shore against a low, perpendicular bank covered with timber to the water's edge. Finding that the hundred feet of rope was too long for me to continually handle alone I had cut it in two, and the fifty feet had served thus far while lining. Now one hundred feet was necessary to span one bad place where the water was surging against the bank, and I tied the two sections together. First clearing out of the way all the limbs and brush I could, and then, fearing that the rope would be jerked out of my hands by the strong current, I fastened its free end to a convenient limb. The boat was then shoved from the shore and I began paying out the line, but in a short distance her stern caught on a limb, at the water's edge—that I was unable to reach to remove—and she immediately began to fill from the outside as the rope tightened in my hands. She would be swamped if the line was not given plenty of slack and I, at once, let go all holds, the bow caught the current, slowly turned outward, the boat made a complete revolution and came to shore safely at the end of the line. About a bucketful of water had come aboard; this I bailed out, and then getting in rowed down a comparatively placid river.

The next two rapids were easy and I ran them with only casual inspection as they were approached. The fourth rapid is called "The Cañon," but has only one wall and the River is quite wide. I had been warned not to get too close to the wall, but found ample room to keep away from it and no element of danger. I ran the Cañon, and the two remaining rapids without hesitation, and reached and landed at the Ferry at 10 o'clock in the morning of August 14.

Mr. Emond had left a note at the cabin, stating that he was at the trapper's cabin, on Wood River four miles away, and asking me to come over and see him. I immediately started, and in an hour and a half, over a plain trail, much of it across flooded bottom land at Wood River, found the cabin just at the base of the mountain slope. As I approached the place I shouted; Emond opened the door, and his Airedale dog, Fannie, rushed out, launched herself upon me, striking me in the side and knocking me down. I kicked her off and was not bitten, and then Emond called her away. I could not understand the dog's actions, as Fannie and I had been good friends, but soon learned the reason. In my ab-

Looking North at the Ferry

sence Fannie had had a litter of pups. Emond had drowned all but one, which the dog watched with anxious eyes, looking upon everyone but her master as an enemy ready to steal her offspring. Airedale dogs are treacherous, anyway, and especially so when nursing puppies. Afterwards Fannie always growled at me if I got near the little one she had left.

I reached Emond just in time for lunch, and after eating returned to the Ferry cabin alone. While inside I heard some grouse calling; getting my shotgun I killed three of them, and had my second good mulligan. Before I left the place for good Emond killed three more with my gun and we both enjoyed a stew.

The following morning, Emond came over to the Ferry cabin for provisions, and then returned to Wood River, while I remained and repaired the boat, the bottom of which had been somewhat cut up the night of the storm on Kinbasket Lake, and further damaged against the rocks while lining down the rapids I had just come through. The one day was all I expected to stay at the Ferry, but the next morning it commenced to rain and kept it up steadily for three days and the weather was too disagreeable to venture on the River.

CHAPTER XIV

FROM CANAL FLAT TO THE FERRY

The Valley, Forests, Climate, Rainfall, Farms, Geology

As there will be three days now with nothing to do but wait on the weather, I will now describe, in a general way, the valley of the Columbia River as far as I have progressed.

We already know that the Columbia River after passing the upper Columbia Lakes enters a comparatively wide valley, with much bottom land, diversified with many lagoons. This condition extends to Donald, just above the railroad crossing. Here the lagoons cease and the River narrows, only to expand again until the head of Redgrave Cañon is reached. It then contracts to a general width of 300 to 400 feet to Beavermouth, except for the narrow place in the cañon. Below Beavermouth it widens again until just before reaching Surprise Rapids it doubles the width above. From the head of Surprise Rapids it runs in a deep mountain confined trough to just above the Ferry, and except for Kinbasket Lake, is rarely over 200 feet wide. The Selkirks terminate in a rather low, flat point opposite the mouth of Canoe River; and five miles south of the Ferry the country expands and becomes a valley eight miles wide, taking in both sides of the River, and extending ten miles north of the mouth of Wood River. This last section is known as the warm belt, and although it is 100 miles north of Revelstoke it is five degrees warmer, and has two feet less snow.

This condition is accounted for by the fact that warm air continually comes up the Columbia from the Pacific Ocean, and, at the sudden turn the River makes, is boxed up against the high mountains of the Rockies that block its further direct progress, and there tempers the mountain atmosphere.

For practically the whole distance I had come from Canal Flat the mountains and valley are heavily forested. The prevailing forest growth consists of white pine, spruce, red fir, Douglas fir, hemlock, cedar, and some tamarack and white birch. On the moist ground cottonwood, aspen, alder, willow, and black ash grow. The surface of the ground, among the trees, is covered by thick, almost impenetrable, brush, among which devil-clubs and blueberry bushes predominate—the latter bearing a fruit that is a favorite food of the bears, and on which they get rolling fat. Many dead trees stand in the forest, and on the ground lie numerous decaying logs, what remain of fallen trees, called "windfalls." The timber growth is especially luxuriant in the warm belt where the trees attain great size, especially the cedar and Douglas fir, many of which are ten feet in diameter. Logging and lumbering operations have been extensively carried on, and are still active between the upper Columbia lakes and Beavermouth. Here they cease and below the forest is virgin, knowing nothing of the axe except in the hands of the hunter, trapper, and fire warden, and the occasional visitor from outside.

The average annual precipitation in the vicinity of the upper Columbian lakes is 13 inches. This increases as the River is followed, and at Surprise Rapids, where a rain gauge is kept, it is 30 inches. No record was obtainable at the Ferry but the rainfall there must be at least 40 to 45 inches. At Revelstoke it is 42 inches, and in the mountains at the head of the Illecillewaet River it is 100 inches. Below Revelstoke the precipitation decreases until at the Boundary it is but 30 inches.

Farming is not very extensively carried on, owing partly to limited cultivable space and partly to a limited market, and it was only above Golden, at Golden, near Moberly, and at Beavermouth that there was evidence of any marked attempt at tilling the soil. There is ample water everywhere for irrigation and hay, grain, fruits, and vegetables suitable to the climate are successfully raised.

As I traveled the River I endeavored to take note of the geological nature of the country bordering it. I was able to do so at camping places; at places where bold bluffs stood out conspicuously; on several side trips I made, such as from Moberly to Golden; from Moberly to a few miles up Blaeberry River; on the two trips I made to investigate Redgrave Cañon, and Kitchen Rapids; a trip of several miles up Beaver River; the two trips to Blackwater Lake, one of them across the mountains; and the trip to Bush Lakes. As I sped by in my boat much of the mountain sides were hidden by the timber and only an occasional outcrop could be seen. But taking it all in all I obtained a quite comprehensive idea of the general character of the rock formations, and as there has been no geological survey made and no report published of the geology of the Upper Columbia River, and as the Lower Columbia runs almost entirely through basalt, my recorded observations are the most complete and authentic general description that has been made. At least I have been unable to obtain anything satisfactory from the geological departments of either British Columbia or the State of Washington.

At the upper Columbian Lakes the benches already referred to, where eroded by the weather or exposed in railway cuts, are of yellow clay; the flat of the valley being glacial drift and silt. Below the benches, as far down as Redgrave Cañon, the formations are largely silicious shales and glacial drift. Auriferous gravels exist in and along tributary streams, and in some places in the River. In Redgrave Cañon the River cuts through limestones, calcareous shale, and quartzite to just above Beavermouth, where quartzite predominates. From Beavermouth to the head of Surprise Rapids the mountains are largely composed of limestone, mica schist, and quartzite; the considerable valley between the mountains being alluvial deposition from Quartz Creek, Beaver and Bush Rivers. From the head of Surprise Rapids to Canoe River on the left and just above the Ferry on the right the formations consist of alternate beds of mica schist and gravel, with an occasional showing of quartzite, clay, and limestone. From above the Ferry, on the right, the valley is alluvial until the bend is turned, and also for a considerable distance to the north and east. Granite and kindred rocks, so common to other mountain ranges, seem to be largely absent in the Canadian Rockies and the Selkirks. Their structure is mainly sedimentary, and they have apparently reached their present form by upthrust and erosion without the aid of volcanic action. Along the Upper Columbia intrusive igneous rocks first become noticeable at Revelstoke.

A description of the geology and general appearance and character of the country traversed by the Columbia River below Canoe River will be taken up in later chapters as the sections are reached.

CHAPTER XV

ALPHONSE EMOND

Alphonse Emond, whom I first met at Surprise Rapids, is a man of dark complexion, of medium size, well built, and upward of fifty years of age. He is of Canadian birth and French descent. He claims to be the lineal descendant of the Bourbon kings of France, and although he has no aspirations that way, also claims to be the legitimate heir to whatever rights the Bourbons have to the French throne.

Emond came to the Columbia River, at Golden, in 1884, and that year ran the rapids of the Columbia to Canoe River. The succeeding year he ran Death Rapids and the others between Canoe River and Revelstoke. He has been down the Columbia to the Little Dalles across the Border. As has already been stated, he claims to have run Surprise Rapids in a specially built boat. He is by profession a trapper, a business at which he has made a success, as he owns a good home in Revelstoke—a two-story, well furnished, frame house set in a large lot. He is now a Fire Warden for the Provincial Government, his district extending on both sides of the Columbia River from Surprise Rapids to Canoe River. Early in the summer of each year he ships his Peterborough canoe over the Canadian Pacific Railway from Revelstoke to Beavermouth, and then descends the River to Surprise Rapids, where he makes the mile and a half portage. From thence he canoes down to the foot of Kinbasket Lake, and when the water recedes, to the Ferry. Between Kinbasket Lake and the Ferry the old Tete Jaune trail is in good condition.

In the Fall, when his duties as Fire Warden cease because the danger of forest fires is over, he turns his attention to trapping and remains in the woods all winter. He has five cabins that he uses, the one at the foot of Kinbasket Lake being his main supply point. Nine miles below is the small cabin at Cummins Creek, and sixteen miles farther is the Ferry cabin. Four miles from the Ferry, and two miles up Wood River at the base of the mountains, is another small cabin of different design from the rest, being constructed with a steep, sloping roof only, and no side walls. Down the Columbia, on the Selkirk side just below Canoe River, is his last cabin, a small one of logs. Both the cabin at Kinbasket Lake and the Ferry are commodious, while they are all comfortable, clean and orderly. In each of the cabins is kept a supply of provisions, and Emond occupies whichever one is convenient as he makes the rounds of his trap lines.

In the Spring, after the trapping season is over and the River free from ice, Emond loads his winter's catch of furs in his canoe and runs the rapids to Revelstoke, Raymond Allen, a prospector living below Canoe River generally assisting him through Death and Priest Rapids. Sometimes Emond has a line of traps on Canoe River—a turbulent stream with several bad rapids—and then ships his canoe, by rail, from Revelstoke to the head of it, and in the Spring navigates both Canoe and Columbia rivers to Revelstoke.

In the early days of the Hudson Bay and Northwest companies beaver were the main reliance of the trapper, both for their pelts and for food. On the Wood River bottoms beaver cuttings and dams are numerous, and they are said to be plentiful; but as they are now protected by law, they are no longer trapped. The principal furs now obtained by the trapper are those of the pine marten, mink, muskrat, bear, lynx, and an occasional fox.

In addition to his activities as a Fire Warden and trapper Emond acts as a hunter and guide for anyone seeking big game. There is game in the country if one knows where to look for it.

An occasional deer and black bear roams the woods, and caribou are numerous, but to avoid the onslaughts of the mosquitoes seek the high elevations at timber line. There are grizzly bears to be found in the rocky fastnesses back from the River. A stranger to the country is at loss where to seek this big game. Emond is familiar with their haunts, and his knowledge is invaluable to the hunter from "outside."

I was with Mr. Emond much of the time for three weeks, sleeping in his cabins, using his conveniences, eating at the same table and hiking the trails with him. I found him intelligent, companionable, hospitable, kindly, and reliable. The information he gave me about the various rapids was exceedingly useful, and almost invariably correct—the only variations from his descriptions were natural ones due to the varying conditions of the Columbia itself.

His disposition was not to magnify, or try to "throw a scare" into me, but he told me clearly the best way to tackle each rapid. Mr. Raymond Allen, whom I met later, told me he considered him the best canoeman on the Columbia River.

Emond treated me as a friend and brother. All he did was without reward, and I here record a small measure of my appreciation.

> NOTE: Since writing the foregoing, I have learned that Alphonse Emond is dead. Under date of July 10, 1922, Mr. J. F. Nattress wrote me as follows: "Trappers Chas. Hatch and Chas. Duncan were drowned in Kinbasket Lake last November 9, as their last entry in their diaries was November 8. Must have been caught in a squall on the lake. They found Hatch and canoe on beach at Middle River, about a month ago—Duncan not yet found. Mr. Emond died in the hospital at Revelstoke, in May—was found floating down river near Gordon Rapids by another trapper. Ice was still in river and he had to portage canoe and Emond over the ice and run the open water—it took him 18 days to get to Revelstoke. Emond could not speak or write, was paralyzed, but managed to get into boat and start drifting down with the ice when he was found lying in boat. I was glad to hear that you got through safely."
>
> Emond was evidently stricken with paralysis when on the trail or at his cabin, but managed to crawl to his canoe and set her and himself adrift in the vain hope that he would float down the River to Revelstoke.
>
> That he may be as well treated where he has gone as he treated me is the best reward I can wish him.

CHAPTER XVI

FROM THE FERRY TO REVELSTOKE

August 19 was a fair day, I was ready to make a new start and expected to reach Raymond Allen's, forty-five miles below the Ferry, before nightfall. Mr. Emond helped me load my boat and then went to the end of the Ferry cable to take my photograph as I rowed by. The last I saw of him was as he stood at the end of the cable, watching my progress, and he soon faded from view.

The Columbia River widens considerably below the Kinbasket Rapids, is 500 or 600 feet wide at the Ferry, and at Wood River, four miles below, is fully a quarter-mile from shore to shore, but contains three islands dividing it into four channels. It is here that three rivers join—Columbia River from the south, Wood River from the east, and Canoe River from the north. They are all placid streams at the junction, which is in a low, wide valley, although each is turbulent farther upstream. Seventy-five miles, in an air line, northwest of the mouth of Wood River, the Canadian Rockies reach their apex at Mount Robson, 13,068 feet high. The drainage on the north side of Mount Robson is into the Arctic Ocean by way of Peace and Mackenzie Rivers. On the southern slope of Mount Robson three rivers have their birth and flow in different directions: the Athabaska, flowing to the east, the Fraser to the west, and Canoe River south, mingling with the Columbia. Canoe River is about 200 feet wide at its mouth and here is the site of the famous Boat Encampment of David Thompson and the early voyagers. On the same side and a short distance below is Camp Creek. Off the mouth of Camp Creek the Columbia is divided into two channels by an island, the right hand channel is agitated with whitewater, but the left hand channel is tranquil. Immediately below the island the River begins to contract, and in spite of the accession from the two considerable rivers it soon becomes no wider than it was through the Kinbasket Rapids.

It did not take me long after leaving the Ferry to reach the mouth of Wood River, and landing on the nearest island I took a picture of the entrance. This island is at the very head of the Big Bend, and turning shortly to the left I soon reached and avoided the rough water below Camp Creek; and a little farther came to Emond's last cabin, on the left hand shore, and stopped long enough to get some flour that I was told was there. The Gold Range was now on my right and the Selkirks on the left. The Rocky Mountains gradually disappear from view, and are seen no more.

I had no way of determining distances, but it was not long, in the swift current, before I reached an inconsiderable rapid known as Potlatch. This I was able to run by cutting through the beginning of the rough water on the right hand side. In a few miles more I passed the mouth of Bigmouth Creek on the Selkirk side, and below that reached Gordon Creek, on the Gold Range side, where there is a more pretentious rapid, and which I decided needed

Mouth of Wood River

investigation before running. I landed on the right, where there is a considerable bank and climbed to its top where I could look down the whole length of the agitated water. At Gordon Rapids the breakers start near each shore, approach each other as they descend, forming a sort of > and at their lower end are divided into two channels by a small gravel bar. Between the two lines of breakers is a sheet of swift, smooth water, without obstructions. It looked safe, if the smooth sheet were followed, and I lost no time submitting myself to it, keeping in the middle and turning to the right just before reaching the gravel bar.

The next rapid was at Soda Creek, a stream from Gold Range. This was run the same as Potlatch, by cutting through the rough water at the head, on the right.

A radical change in the appearance of the country was now apparent, and from the description Emond had given me I knew it could not be much farther to where Raymond Allen lived. There were frequent gravel beds crossing the River—some high above the water—and evidences of abandoned placer diggings; occasionally a deserted cabin. It was not long before I recognized Allen's location, on the Selkirk side, and landed just below the creek on which he mines. His diggings are on top of a bench fully 400 feet above the River, and below them the steep hillside is covered with smooth, water-washed boulders. There was no perceptible trail across the boulders but I climbed over them to the top of the bench, where there is a trail, and following it, a quarter-mile, came to Allen's cabin.

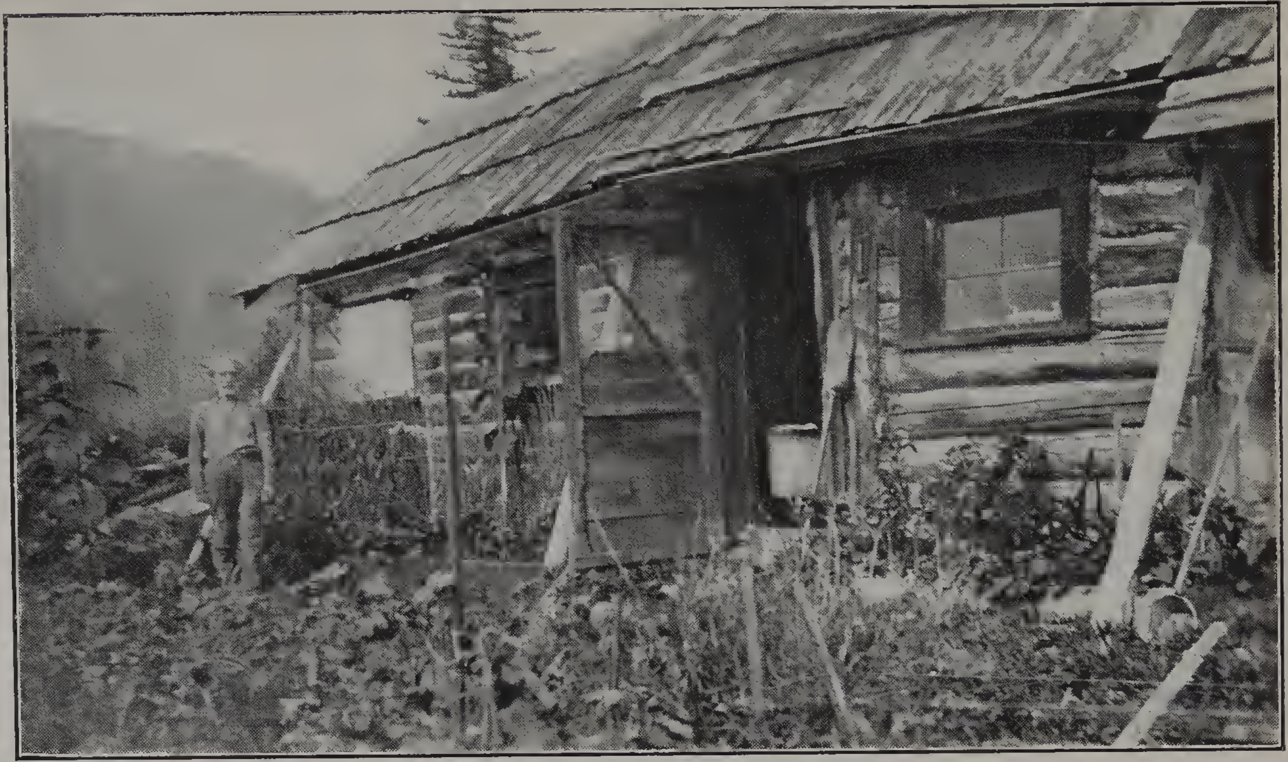
The door was open but there was no one to greet me except an old black water-spaniel who wagged her tail in welcome.

I had brought my shotgun with me and shot it off twice, as a signal, but got no response. After waiting until almost dark and no one coming, and not being able to find a lamp or candle in the cabin, I returned to my boat, got a candle and something to cook for supper. I had made a light and just started to kindle a fire in the stove, when Mr. Allen appeared in the doorway—a tall, large, rawboned man, with strong features, and kindly blue eyes beaming beneath a shock of thick, gray hair scorning the protection of a hat, and apparently about seventy years of age. He greeted me cordially and read the note Mr. Emond had sent recommending me to his hospitality, and to his assistance in running the dangerous Death Rapids which were but a few miles down the River from where Allen makes his home. Emond himself was accustomed to utilizing Allen's help in the lining of Death Rapids. Allen prepared supper and as there was but one bunk I slept on the floor in the back room.

I expected to be on my way in the morning but the weather was again against me. Rain set in and I was housed up for four days.

Raymond Allen lives on a small creek in the Selkirks a mile above a large creek called Goldstream. He has been in the vicinity for twenty-five years—all the time engaged in placer mining. In this section there are several ancient river channels, some of them close to the present surface of the Columbia River, others high above it. These channels begin at the summit of the Selkirks and extend westerly crossing the Columbia into Gold Range. Gold was discovered in the gravels of the channels in 1865 and a stampede was made to the district. Placer mining was extensively carried on for several years, but proved disappointing, and is now abandoned except for a few prospectors who eke out a precarious livelihood by crude methods. Mr. Allen still has confidence in the district and claims he knows where there are several rich pay-streaks, but that he has not the capital to work them right. As near as I can learn the gold is there but lies under a false bedrock, making mining difficult and costly. No large companies are now operating in the Big Bend gold district.

The site Mr. Allen has chosen for his home is on a bench 350 feet high, overlooking the Columbia on the south. His cabin is of logs, a two-room affair with a long woodshed at one end. A great deal of wood is required to last him through the long winters. The mine is a quarter-mile away to the north; and immediately below the cabin is a terraced vegetable and fruit garden, and he has another on a small flat just above the house. He raises a variety of garden stuff sufficient for his own use, including sugar beets and wheat. From the former he makes sugar, and from the latter grinds flour. For meat he occasionally finds game. His wants are simple, but he lives well on what he has, and he is practically independent of the storekeeper—a little in the way of clothing is all he requires of them. He is a man of education and in-



Raymond Allen and His Cabin

telligence, and of natural kindness and hospitality. I will always bear for him profound respect.

On the afternoon of August 22 the rain ceased and the sky cleared. Mr. Allen suggested that we go across the River in my boat and inspect the old Smith Creek diggings, where there are a couple of cabins, extensive abandoned excavations, old flumes, pipe lines, and tools.

Going down to the boat, we were just ready to launch her when the dog Queen appeared and immediately jumped aboard, and we took her with us. The main channel of the River here has a very swift current, but along both shores are strong eddies in which the water runs upstream. To get across it was necessary to go up the eddy on our side, cut quickly through the swift water, which carried us down stream as soon as we reached it, and getting into the opposite eddy row quickly to the shore. There was only one suitable place for a landing on the Smith Creek side and the crossing had to be planned to reach it.

After spending an hour, or so, examining the abandoned property, Mr. Allen and I started back to our own shore, in the same manner in which we had come over, but in reverse order. We had forgotten the dog, who had been somewhere in the brush when we left the Smith Creek side. We had almost reached our own landing-place when Allen, who was facing the way we had come, exclaimed, "Why, there is Queen; we must go back after her." But Queen did not wait. We had only gone back a short distance when she dashed into the water, and dog-like, swam straight in our direction and directly into the swift current. She was carried rapidly down stream and we soon saw that although we might overhaul her in time it would be impossible to get the boat back against the current. We ceased our efforts and Allen stood up in the boat and watched until he could see the dog's black head no longer. He kept repeating over and over, "Poor Queen, poor Queen, she is gone, she is gone." I tried to cheer him by saying that as Queen was a water-spaniel she would probably reach shore safely, but he would not be comforted, and said, "No, she is too old, poor Queen." After she passed from view we hurriedly made a landing, and leaving me to take care of the boat Allen raced up the hillside towards his cabin, evidently intending to go down the shore, through the woods, in an effort to find the dog.

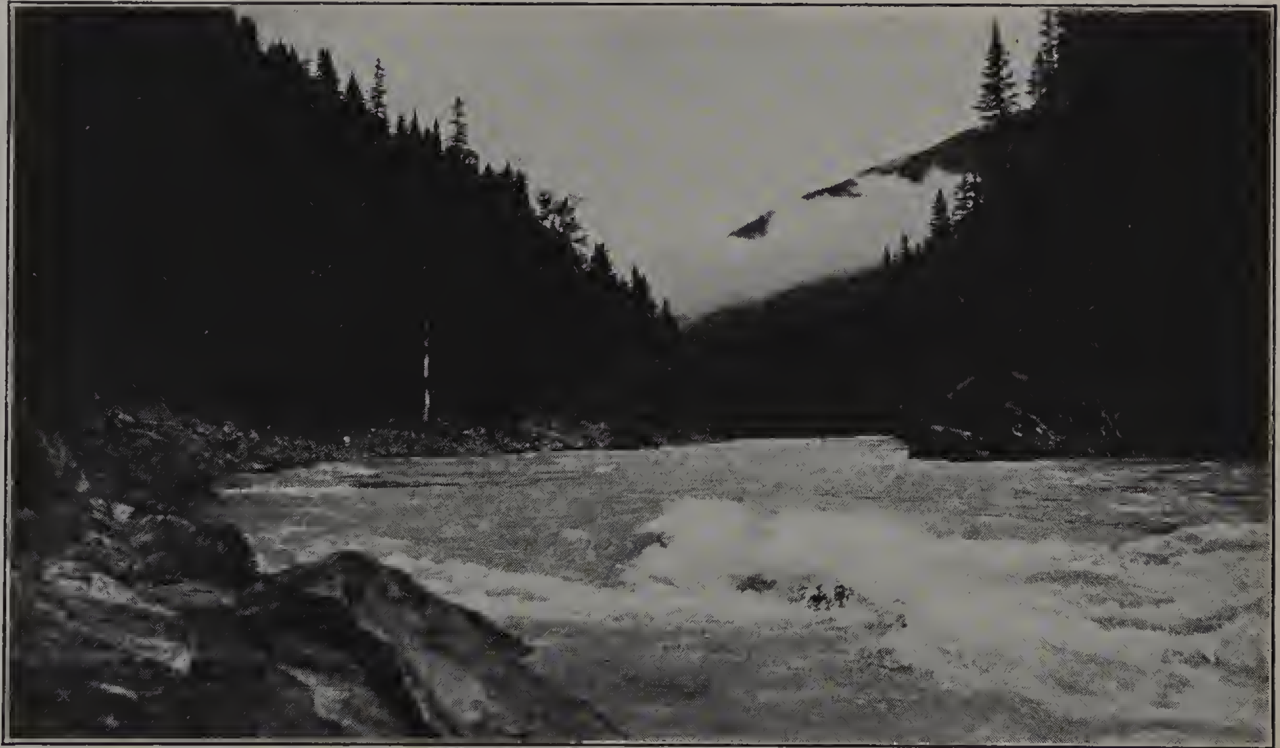
I followed in about ten minutes, but had no sooner reached the cabin, and entered it, when Queen came walking sedately in, and thinking she had just arrived, and would be hungry after her strenuous swim, I gave her something to eat. Believing that Allen was somewhere along the River's bank in search of the dog, and had missed her, to call him back I fired off my gun, called at the top of my voice, rattled tin pans together with a hideous racket, but no Allen appearing, I began to get worried about him. After waiting about an hour it occurred to me to make a search, first going to the placer mine, it having dawned upon me that he was taking advantage of the good weather to do some work. Here I found him busily engaged, as though nothing had happened. I asked him to explain, and his statement was, that after climbing the hillside he was hurrying along the trail, and just before reaching the cabin, Queen came bounding up the hill, through the brush, none the worse for her experience; and like myself, thinking she might be hungry he gave her something to eat, and then went to the mine where he had a little work to do. When I thought of Allen's causeless anxiety about his dog, my own useless worry about him, and the great racket I had made, the whole performance partook of the ludicrous rather than the tragic, as the only result of Queen's adventure was that it netted her an extra meal. Nevertheless, after that Queen was a heroine to me. She was a brave old dog, and a faithful friend and companion to Allen.

The next day the weather was again unfavorable and it was not until the morning of August 25 that it cleared and my further progress became possible.

Death Rapids, of evil repute, were 13 miles below, and Mr. Allen had agreed to help me line them and Priest Rapids which are almost a continuation of them. Tying Queen in the cabin with a light line so she could break loose without much effort, Mr. Allen and I boarded the COLUMBIA, now for the first time carrying more than one passenger on her downward journey. The first rapid we reached was Twelve Mile. It was easy and did not detain us. Just below are Death Rapids and as we approached their head, Allen, who was rowing, snapped the mended oar square off at the tin sleeve. Becoming somewhat excited, and because the leather strap was holding the rowlock, he gave a great jerk and not only tore the rowlock loose but broke the safety cord that held it to the gunwale, and it flew out of sight within the boat. There was no time in which to search for the rowlock; the reserve oar was lying at Allen's side, and grabbing that he rushed to the boat's bow, and between us—I with the steering paddle—we easily reached the right hand shore and began lining.

Death Rapids have no counterpart on the Columbia—Ross Cox calls them "The Narrows," and after the deaths of the members of his party they became known as "Dalles des Morts." At their head a jutting rock from the left hand shore contracts the channel to a width of not over a hundred feet, the narrowest place on the whole River below Athalmer except Redgrave Cañon, which is about 140 miles upstream. In the channel the breakers are fully fifteen feet high—the highest on the Columbia. No one but fools attempt to run Death Rapids. The lining has to be done on the right hand side, and the peculiarly bad features along that shore are that in three places the water rushes down short, steep inclines with boiling surges below that will easily swamp a boat or canoe, especially if loaded. Allen and I carefully lined down this shore, he on the towline, I with the pike-pole. Twice we had to unload and carry the luggage—dropping down the empty boat. We had no trouble, but it was slow, cautious, and active work.

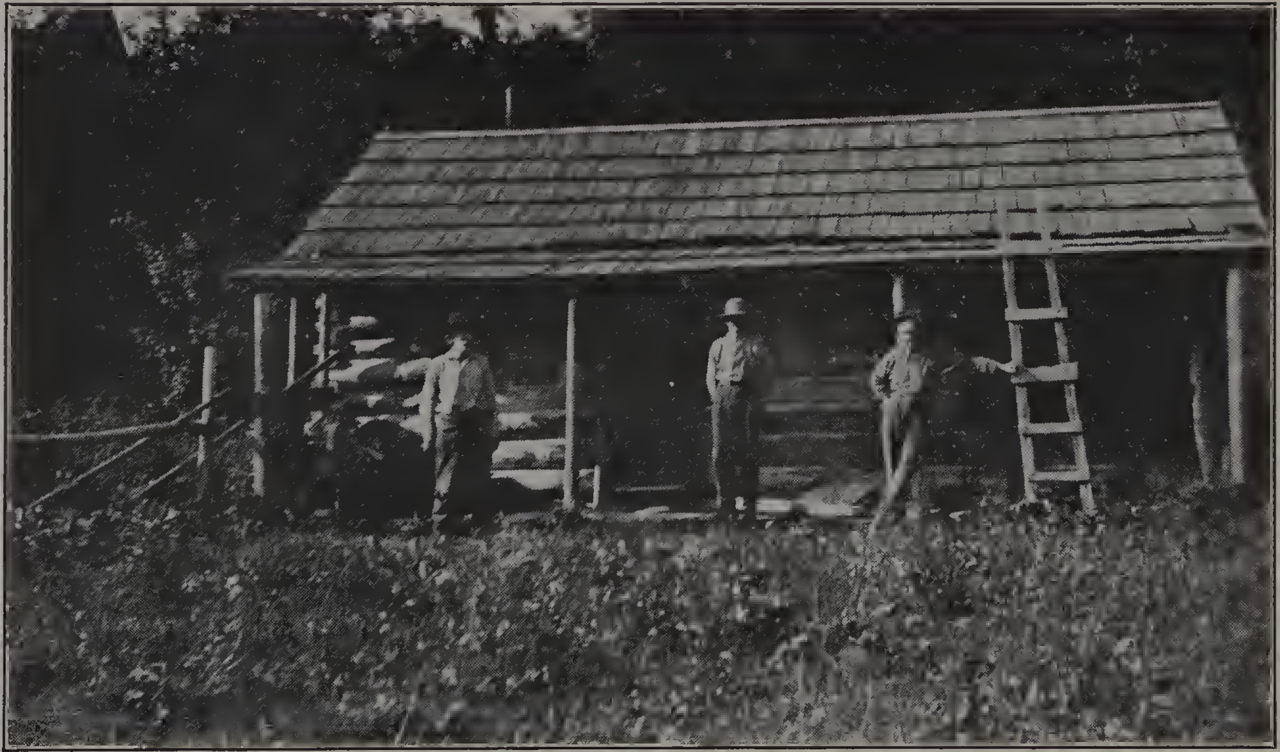
Priest Rapids begin not over one hundred yards below Death Rapids. They are short but too rough to run, and cannot be lined on the right hand side because that shore, for a quarter-mile, is smooth, inclined rock, with no possible place to obtain a



Looking Up Death Rapids, Waves Fifteen Feet High foothold. The only thing to do is to run quickly across, in the swift current, between the two rapids, land on the left hand side, and then line.

We had found the missing rowlock in the bottom of the boat, under the floor boards, and using the new oar we easily made the crossing, and started lining. In a short distance we came to a low point ending in a large, partly submerged rock, around which the water rushed, forming, on the lower side, a small but veritable maelstrom. It was worse than anything we had lined through in Death Rapids, and I told Allen that I would not trust my boat in it, but we would have to portage. It was but fifty feet across the point, and first carrying the load over, we made rollers from small logs on the beach, and by lifting and dragging we got the COLUMBIA to where we could launch her in safe water below the maelstrom. Here we re-loaded, got aboard, and in a half-hour were at Downie Creek, where there is a Fire Warden's cabin, which we intended to inhabit for the night. The cabin is on the north side of Downie Creek, about one hundred yards from the River, and when we reached it we found it already occupied by Mr. H. A. Morris, the Fire Warden, and his assistant Fred Terry, who made us welcome for the night.

The next morning I was ready to continue my journey alone, as Mr. Allen intended to walk back, on the trail, the sixteen miles to his cabin. Parting from the three men, whom I left standing on the shore, I started for Revelstoke, 45 miles down stream, expecting to reach it before nightfall. The swift current carried me rapidly downward, and



Fire Warden's Cabin at Downie Creek

in about ten miles I reached Eighteen Mile Rapids. They were easy and I ran them without stopping. Seventeen miles of good river followed, and then came two unnamed rapids, somewhat rough but runnable, causing no delay. Within four miles of Revelstoke I came to the Petite Dalles, sometimes called "The Cañon." The place is approached by a long crescent curve to the right where a swift current dashes along the base of a steep, sloping cliff on the left-hand side, having clinging to it a trestle-supported roadway. The curve ends in a large eddy just above a sharp turn to the left. A short rock cliff is on the right below the eddy, and on the left is a low rocky point. The place demanded investigation before running, and I landed at the head of the eddy, got high on the shore, and looked down the rapids. They were rough, with good-sized breakers, but I decided were runnable. It took strong rowing to get out of the embrace of the eddy, but the task was finally accomplished, and sliding, backwards, down the safest water I was tossed about somewhat, without incident. The next, and last, rapids are Steamboat. They were negligible, and I was now through all the rapids of the Big Bend, twenty-nine in number, had had no accident, and had taken aboard no water since the time the COLUMBIA turned completely around in the Kinbasket rapid below Yellow Creek.

Two miles below Steamboat Rapids I entered the eddy, above Revelstoke, where a jutting point on the Gold Range side causes the Columbia River to turn back on itself with an angle of 180 degrees to the left, without intervening land between. It is at this point that the Canadian Pacific Railway makes its second crossing of the Columbia from the high bench on the Selkirk side, and just below is the highway bridge. After Steamboat Rapids are passed the River is not so closely confined as above, and it expands until at Revelstoke it is a thousand feet or more wide. I made the turn at the head of the eddy, passed under the two bridges, and at 4:30 o'clock in the afternoon of August 26, reached Revelstoke and pitched my tent on a low, grassy bench at the lower end of the town, and near Warner's sawmill.

The stormy night on Kinbasket Lake, and lining down Kinbasket Rapids were hard on the bottom of the COLUMBIA—the edges of the outer boards were cut to the quick, and a leak had started that made frequent bailing necessary. I concluded to take off the original boards and put on two new outside ones on the bottom; and also to give the boat a fresh coat of paint, as its appearance was somewhat marred. For this purpose the necessary lumber was obtainable at Warner's mill, and mixed paint in an uptown store.

When the boat was built at Canal Flat the side boards, at the bottom, had been made to project a half-inch, instead of being flush with the sides, so as to take the brunt of the rubbing against the rocks along shore in the rapids. This projection was almost entirely cut away, and as I expected to line many more rapids before reaching Astoria, and did not want to replace the bottom boards again I devised a substitute for the original construction. This consisted of a strip for the bottom edge one inch

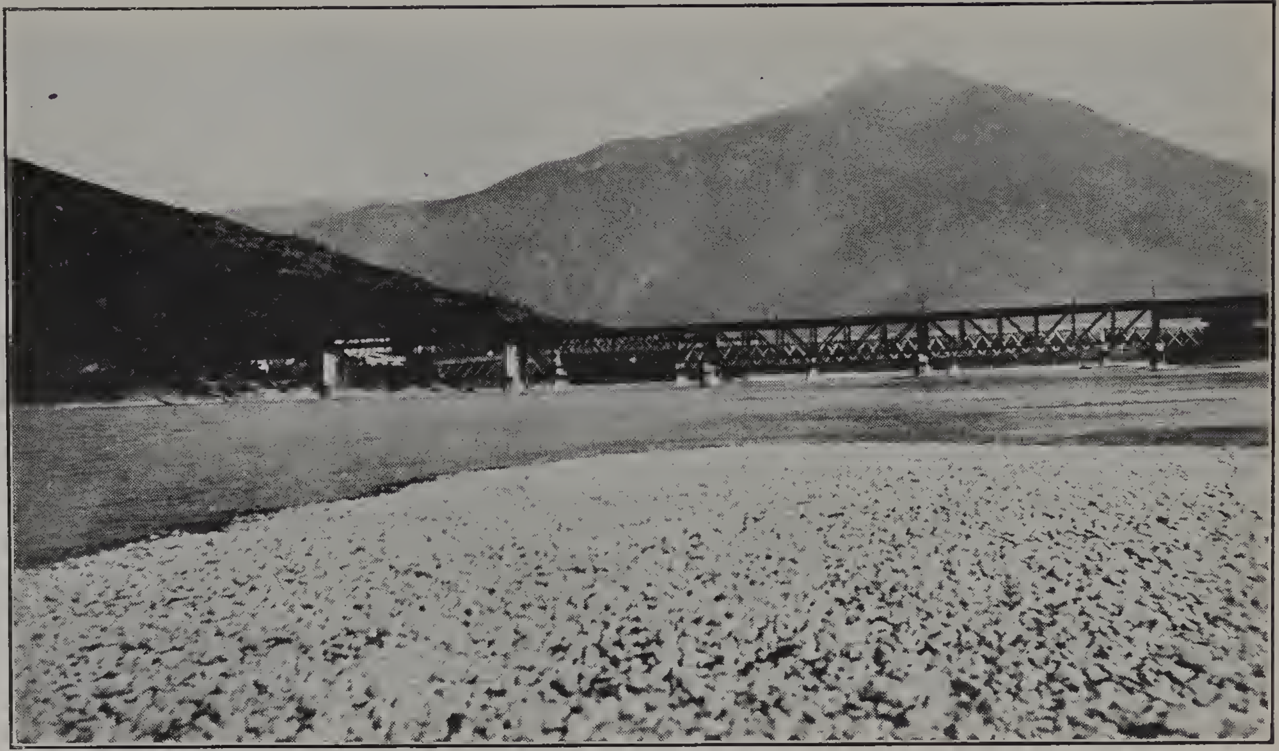
—*Photo. by Merigeau*

A Moonlight Scene on the River

wide and a half-inch thick, with two edges rounded, like moulding. Making the bottom boards come flush with the sides the rounded strips were nailed to the bottom, lapping over the sides a half-inch. The bottom itself was subject to little injury, and should either of the strips become seriously damaged, all that had to be done would be to remove it and replace it with another.

I determined to purchase a sheet iron stove at Revelstoke, but visiting all the hardware stores found there was none small enough for my purpose. Making a drawing of what I wanted I found a good tinsmith, who made me a stove of the size required of heavy, galvanized iron, weighing about twenty-five pounds. He also made me two joints of five-inch stove-pipe. I used the stove constantly thereafter, and got a great deal of comfort out of it, as it not only served for cooking purposes but for heating the tent when the weather, later, got cold and wet. Both the stove and boat were ready for use in a couple of days, but stormy weather again set in, and delayed my departure.

Revelstoke is admirably located on a large, level bench rising about 70 feet above the level of the Columbia River, on the east side; and about a mile north of the Illecilliwaet River, the stream by which the Canadian Pacific Railway again reaches the Columbia Valley after crossing the Selkirk Range. It is the largest town on the Canadian Pacific between Vancouver, on the Pacific Coast, and Calgary, on the prairie, east of the Rocky Mountains. It has a population of 4,350, and is modern in every particular except that it is not large enough yet to



C. P. R AND TRAFFIC BRIDGES AT REVELSTOKE, MT. BEGBIE IN THE BACKGROUND support a street railway system. When that time comes ample hydro-electric power is available from nearby sources. The town owns its own water, light and power systems, the source being the Illecilliwaet River. Revelstoke is a division point on the Canadian Pacific, and is also connected with Arrowhead, on Upper Arrow Lake, to the south by the Arrowhead and Kootenay Railway. It is the commercial center of a large agricultural and mining district, and the location of the numerous Provincial Government offices. Its elevation above the sea is 1,430 feet, 1,000 feet lower than Beavermouth on the Columbia at the foot of the Selkirks on the east. All the way around the Big Bend the country is wild, with no cultivation except Raymond Allen's little garden, but just above Revelstoke farming begins in earnest and continues, almost unbroken, along the Columbia River to its mouth. As there is ample rainfall, irrigation is not necessary, and forage, vegetables, small fruits, apples, pears, cherries, and plums are dependable crops. Livestock raising, and dairying also are relied on by the farmer. Lumbering is an extensive industry principally south of Revelstoke, and along Upper Arrow Lake. The timber to the north, on the Big Bend is untouched by the lumbermen. Minerals and precious metals are found in every direction. There is placer gold, and a commercial quality of mica on the Big Bend. In other places, both in the Selkirks and Gold Range, gold, silver, copper, lead, zinc, arsenic, and asbestos are found. The climate in the vicinity of Revelstoke is mild and equable, being influenced by the warm currents that come up the Columbia River. The temperature ranges from a maximum of 89 degrees in July to a minimum of 12 degrees below zero in January. In addition to being a commercial center Revelstoke is a tourist resort. There are many scenic attractions near the town, and but 37.5 miles away are the Alpine attractions at Glacier. Triple-peaked Mt. Begbie stands guardian over the town on the south.

I became acquainted with many of the citizens of Revelstoke, among whom was Mr. Walter Bewes, the Mayor. Mr. Bewes loaned me a copy of a report written by Mr. J. P. Forde, a Canadian engineer who made an examination of the Columbia River, below the Arrow Lakes, for the purpose of determining the feasibility of improving the various rapids for steamboat navigation. The report included a list of all the rapids from Castlegar to the River's mouth, giving their names, character, and distances from the International Boundary. Mr. Forde took photographs of many of the rapids, and of these he sent me several that I am using as illustrations. After my return home I obtained a copy of the report of the United States engineer, Lieutenant T. W. Symonds, which contains a list of rapids almost identical with Forde's. I found Forde's list very useful on my trip, and kept it at my side for frequent reference.

CHAPTER XVII

FROM REVELSTOKE TO THE INTERNATIONAL BOUNDARY

On the afternoon of September 1 the weather cleared, turned cool, and fresh snow fell on the mountain summits. The next day was favorable for continuing my journey. Mr. Bewes, the Mayor, had promised to speed my departure, and at noon he appeared, bringing with him his young son to take our pictures. Grasping me by the hand he bade me farewell, and good luck, and as I settled to oars pushed my boat from the shore.

The Columbia River between Revelstoke and Upper Arrow Lake, has no rapids, and for the upper two-thirds of the distance is often a half mile wide, broken by many islands, and is quite crooked. For the lower one-third it is quite straight, free from islands, narrows up, and frequently less than a quarter mile wide. The valley has become open—from a half to two miles wide. For many miles the steep mountain slopes reach the River on the right, but on the left there are frequent stretches of low bottom land, all under cultivation. As the Lake is approached the cultivated bottoms appear on both sides of the River.

By rail it is 27 miles from Revelstoke to Arrowhead, but by water it is about 29 miles. I was unable to reach the place the first day, but arrived there at noon of September 3, and as the weather

Walter Bewes, Mayor of Revelstoke, Bidding the Navigator Good-bye was again threatening and there was a great lake ahead to be crossed, possibly in a storm, I went into camp at the upper end of the town, on a low flat just under the railway embankment, and below the sawmill.

Arrowhead is at the north end of Upper Arrow Lake. It is a small place maintained as a lumbering center, and as a tourist resort. At the base of a high bench, that skirts the lake on the north, is a long strip of low ground. On this, and clinging to the hillsides are located the various buildings. The railway tracks are at the base of the hill. In addition to being a railway terminus, Arrowhead is the terminus of steamer transportation from the south by way of the Arrow Lakes. The Canadian Pacific Railway maintains two large steamboats, Minto and Bonnington, in regular service between Robson and Arrowhead.

Upper Arrow Lake is 43 miles long, 3 miles across in the widest place, and is said to be 720 feet deep. East of Arrowhead is Northeast Arm, 10 miles long extending to the mouth of Incomappileux River. South of Northeast Arm is Galena Bay, about a mile and one-half wide, and extending to the east about two miles. The lake is mountain-locked, and below Galena Bay the east shore is bounded by rock cliffs and promontories rising directly out of the water to great heights. The west shore is less precipitous. Upper Arrow Lake has as great scenic features as any other section of the Columbia River.

I was able to get away from Arrowhead by the middle of the forenoon of September 4, had crossed

Looking Down Upper Arrow Lake from Arrowhead

Northeast Arm and Galena Bay by noon, and reached the cliff-lined shore. There had been a light head wind all morning, which retarded my progress some, but it now became a strong, steady blow which soon stirred up the waves and crested their tops with white-water. I battled against the wind and waves as best I could, and would gladly have gone ashore and camped, but there was a towering line of continuous, beetling cliffs, rising sheer from the water for mile after mile, and no place, anywhere, to make a landing let alone making a camp. Rowing steadily, with every ounce of muscle, averaging a progress of less than two miles an hour, the steep, unbroken shore continued for eight miles to Halcyon, where the rocky wall ended temporarily, and there was a small wharf, at which the steamers landed. The day was about spent when I reached the place, and tying my boat to the wharf I erected my tent on the narrow, sloping, rocky beach, and got some boughs to soften the rough, hard ground on which I had to lie for the night.

Halcyon is on the east side of Arrow Lake, and is a health resort, and has a much advertised medicinal hot spring. The hotel and outbuildings are located one hundred and fifty feet, or more, above the Lake, on the steep mountain side, and amongst the thick, evergreen timber. The resort is operated by the Canadian Pacific Railway Company.

I made no investigations at Halcyon, but early in the morning departed for the south in weather almost as windy as on the preceding day. There were still many great cliffs on the east shore, along which I traveled, but they were no longer continuous for any great distance, and I could have gone ashore in many places, if I wished, but continued on for seven miles until St. Leon was reached. I had been advised to stop at St. Leon and see Mr. B. R. Atkins, a literary man, who was engaged in a work on the Columbia River.

St. Leon is located on a considerable area of high bottom land between Half Way and St. Leon Creeks, flowing from the east and entering Upper Arrow Lake but a few hundred feet apart. Close to the lake shore is a large, frame hotel building, below it is a single cabin, and above are three more, the upper one belonging to the Atkins'.

I first landed in front of the Atkins' cabin, but finding no one at home, got aboard the boat and again rowed downshore a little farther, until opposite the hotel building, and there making the boat fast, walked up the sloping beach and entered the building, the front door of which was open. The rooms were almost bare of furniture and the place seemed deserted, but passing through those in front I reached the kitchen where I found the owner, Mr. Michael Grady, who was living alone in the great, empty house. I explained to Mr. Grady who I was, and that I wanted to see Mr. Atkins. He informed me that I could not see him until evening, as he had gone several miles up Half Way Creek to catch a mess of trout. He also told me I could occupy the lower cabin, and invited me to eat supper with him that evening. Leaving him I rowed the boat a little farther down the shore, and unloading what I needed made myself at home in the cabin, which contained a good cast iron stove, some dishes, a wooden bunk, and a hard mattress. I had supper with Mr. Grady, and learning that Mr. Atkins had returned, walked up to his cottage, there met him, Mrs. Atkins, and some young friends who were with them, and spent a pleasant evening, and learned something of Mr. Grady's affairs.

Mr. Grady had made a modest fortune as a mining man, and invested $35,000 of it at St. Leon. Something less than two miles away, on St. Leon Creek, is a medicinal hot spring, and the conditions and location were favorable for a health and tourist resort. Acquiring 480 acres of land to give him control of the situation, Mr. Grady laid 9,000 feet of pipe and brought the water from the spring to the site most favorable for a hotel. He then erected the present building, three stories in height, containing 27 rooms, and two plunges, one for men and one for women. The place was furnished and opened for business in 1906, and was successfully operated for several years, until for some reason (not explained to me) trouble occurred over the liquor license, and Grady vowed he would no longer maintain a bar at his resort. The result was that the place rapidly lost custom, became a losing proposition, and has been closed to business since 1916. Mr. Grady is getting along in years and now wants to dispose of the St. Leon property for $20,000. With good management the resort ought to pay. The hotel building is in good condition, the mineral spring has as high curative properties as the one at Halcyon, and the location is much finer and more attractive. The liquor question is no longer a factor, as the Provincial Government now dispenses all spiritous liquors, issues no license for its sale as a beverage, and the old time saloon no longer exists in British Columbia.

I had expected to leave St. Leon the morning following my arrival. Mr. Grady had invited me to have breakfast with him, but before doing so I went across the beach to the landing place of the COLUMBIA to prepare her for departure. The boat had been drawn up on some logs, raised up on one edge to drain, and braced in that position with an oar. The bottom was below in an inclined position, and reaching under it to get something, I dislodged the oar, and the COLUMBIA'S whole weight came down upon the small of my back, forcing me to my knees. I managed to crawl from under the weight, and did not know I was injured until, attempting to place the boat in its former position, I felt something snap in my left side, pain darted all through my body, and after that I could not stand erect, and got no relief in any position, either in walking, sitting, or lying down. I suffered intensely for two days—getting no rest at night—when it occurred to me that a bandage drawn tightly around my loins would be supporting and helpful. I was in no condition to make the bandage myself, but taking with me an old shirt to make it from, I managed to reach Mrs. Atkins, at her cabin, explained what I wanted, and asked her assistance. Luckily she had some cheese-cloth, and cotton batting, and with them prepared a padded belt about five inches wide, which she secured tightly around the sore place with stout safety-pins. The effect was immediate, and so beneficial that in two days' time the pain was almost gone, and testing out my rowing abilities, I found that by holding myself erect, and not straining at the oars, I could row without discomfort. In the meantime Mr. Grady had to prepare all my meals.

On the night of September 10, there was a decided fall in temperature, with heavy frost, and fresh snow low down on the mountains. The next morning I loaded my boat and was ready to continue down the Lake. Mr. Atkins came down to see me off, and took a couple of "snapshots" at me for his own use. The last I saw of St. Leon, Mr. Atkins was watching me from the beach and Mr. Grady from the door of the hotel.

Rowing slowly I followed the left shore of the Lake, which was more broken than above, with an occasional sandy beach. There were still many great cliffs; they lacked the continuity that exists farther north. The right hand shore still had the smoother contour.

I had made rather a late start, and that together with the little effort I could put into rowing prevented me from going more than seven miles that day, but I reached Cape Horn Creek, where there is a fine stream of water; and as someone had a sort of bivouac there in the timber, consisting of a low hut, table, and bench; and as the shore was rough ahead, although still early in the afternoon I concluded it wise to avail myself of the favorable spot and remain for the night. Cutting fresh boughs, and spreading them on the floor of the hut I passed a fairly comfortable night, considering the condition of my side.

The next day, September 12, I reached Nakusp by the middle of the afternoon, passing the mouth of Kuskanax Creek, which has formed a considerable delta, extending a mile or more westerly into the Lake, just above the town. Following down the shore for full two miles, the beach was too rocky to set up a tent, or even throw down the sleeping bag, and as the condition of my side demanded a fairly comfortable place to sleep it looked for awhile that I might have to go to a hotel—something I did not like to do as my outfit would be left unguarded during the night. Finally, at the extreme lower end of the town I found a Government dredge at the shore, and going aboard examined it. There were several staterooms on the upper deck and many of them contained bedsteads and spring mattresses. There was no one aboard, but I knew that the dredge must be in charge of a watchman and I scoured the town over until I found him and got permission to sleep in one of the staterooms. Cooking my meals on the beach I carried the sleeping bag to one of the best rooms, and there passed a comfortable night. After that my side bothered me no more, although I kept it tightly bandaged for several days longer.

Nakusp is on the east side of Upper Arrow Lake, about seven and a half miles above its lower end. The projecting delta to the north forms the bay on which the town is located. East of the Lake shore is a high bench with considerable sloping ground at its base. On top of the bench, clinging to its sides, and at its base are the buildings. The place is a lumber and tourist town, and somewhat resembles

The Town of Nakusp on Upper Arrow Lake

Arrowhead but is larger. Eight miles away, on Kuskanax Creek are Nakusp Hot Springs. The Canadian Pacific Railway from Kaslo, on Kootenay Lake, has its northern terminus here, reaching Upper Arrow Lake by way of Nakusp Creek.

September 13 I left Nakusp, rowing directly across the Lake, here a mile and a half wide, and reached the right hand shore for the first time. There was a strong wind blowing, as I crossed, but as my side no longer hurt I made good progress, and in a short time reached the lower end of the Lake, and the head of the contracted connecting channel between the two Arrow lakes, called "The Narrows." As the weather had been cool Upper Arrow Lake was low when I reached it and I had noticed no current, but at the head of the Narrows it was quite swift, but gradually diminished until at the end of about five miles it was sluggish. There is a marked change in the appearance of the country beginning at the Narrows. The mountains had been gradually getting lower after leaving Revelstoke. Those of the Gold Range had never been as high as those of the Selkirks, and now the snow-clad peaks had disappeared, the timber had become less dense, with frequent open, park-like places, and the mountain tops were bare. The Narrows are eighteen miles long, and vary from a quarter to a half mile in width. There is much bottom land on both sides of them, all under cultivation. That night I reached Mackinson Landing and slept on the floor of an empty cabin on the right-hand shore.

September 14 carried me through the Narrows and I reached Lower Arrow Lake at Burton. Here,

Head of Narrows, Looking Down Stream

for the first time since leaving Columbia Lake, there was a light breeze in my favor, and going ashore I cut two willow sticks, about seven feet long, each with a crotch at the top, secured them to the sides of the boat at the gunwales and stretched the bed tarpaulin across for a sail. The wind was weak and sailing was too slow, rowing became necessary to make material progress, and using both sail and oars I reached Needles, twelve miles down the Lake. Needles is on the right hand shore at the mouth of Whatshan River, which drains Whatshan Lake, a narrow, crooked body of water about twelve miles long, and about four miles away, to the north. A considerable area of low, bottom land has formed here and is the location of a little settlement—a steamer wharf, store, storehouse, and a couple of dwellings. As the shores of Lower Arrow Lake were rocky below for several miles, and the likelihood of finding a favorable place to camp was doubtful I concluded to remain at Needles for the night, and obtaining permission to use the storehouse made a bed on the floor.

The next day following the right hand shore I had reached Johnstone Creek (at that season of the year dry) and as the day was waning began to anxiously search the shore for a suitable place to sleep. I could see nothing ahead for miles but a rough, uninviting, rocky beach. Johnstone Creek has brought down from mountains a great mass of boulders which have formed into a considerable point about forty feet high. The top of this point is flat and covered with a thick grove of second-growth spruce trees. Almost concealed in the grove,

Sailing on Lower Arrow Lake

and about a hundred yards from the shore, I noticed the corner of a building and went ashore to investigate. I found a one room log cabin containing a large bunk, table, and a dilapidated Sibley stove. I could not have found a better camping place, and bringing up my own stove made myself at home. There were plenty of spruce boughs handy, and with the bunk filled with these no better bed could be desired than the one I had that night.

The cabin was the winter headquarters of a trapper. On the door was posted his notice of intention, reading thus:

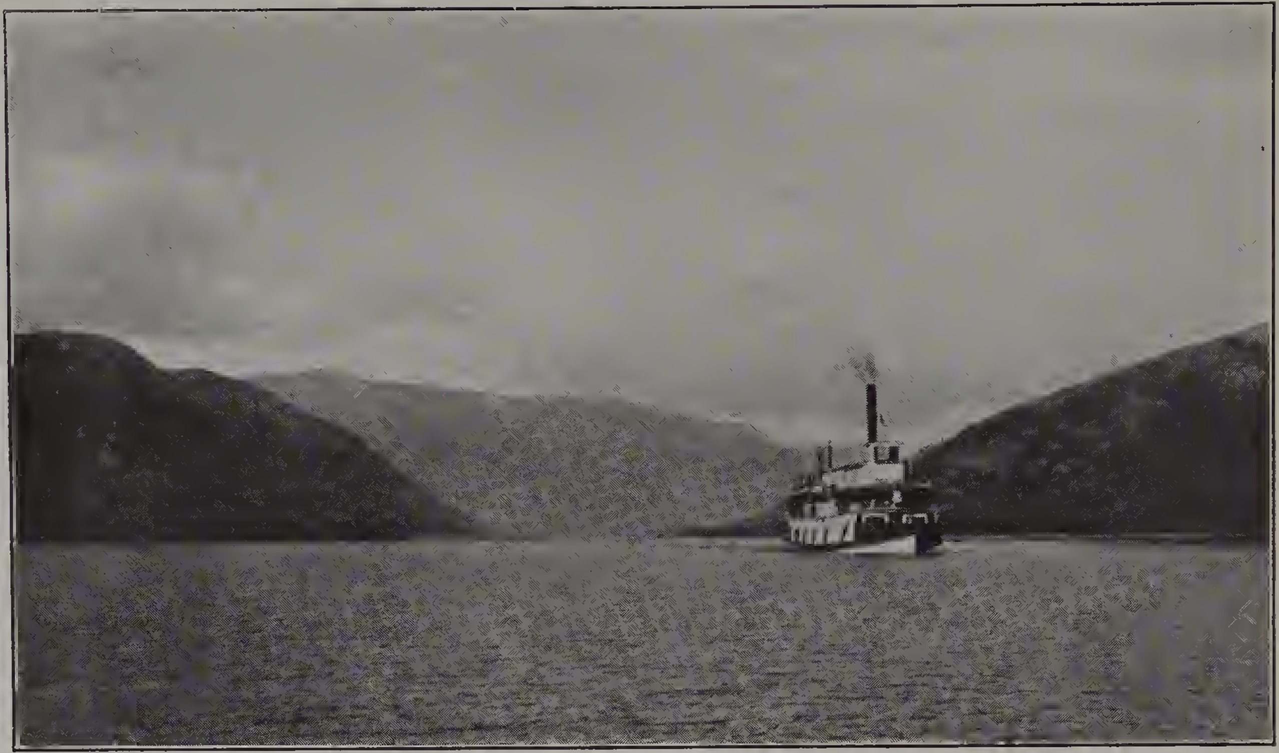
> Edgewood, B. C., Sept. 12, 1921.
>
> This is to certify that I the undersigned intend using this cabin this coming winter, and will extend a trap line from Arrow Lake to the head of Johnston Creek and so on around, terminating at Edgewood.
>
> THOS. R. NESBITT,
> Edgewood, B. C.

The day I arrived at Nesbitt's cabin was September 15th—my birthday. I was 68 years old, and just one year before had conceived the idea of braving the waters of the Columbia River. Mr. Nesbitt had left several inches of blank space below his notice, and I decided to inscribe there a notice of my own to commemorate the day. This is what I wrote:

> I am on my way down the Columbia River, from its source to its mouth, and on September 15, 1921, I passed the night of my 68th birthday in this cabin.
>
> M. J. LORRAINE,
> The Columbia Man.

The next day as I was traveling down the right hand shore of the Lake I came to a large, deserted cabin, and stopped to investigate. In one room there was a small cot mattress, in good condition except that squirrels or mice had eaten away about a foot of one end. I had had some hard beds occasionally, spruce trees were becoming scarce, superseded by the pine, and pine needles make a poor bed. I appropriated the mattress, sewed up the open end, and although it was a little short the mattress served nicely, and thereafter there was no necessity of gathering boughs to lie on at night. After leaving the deserted cabin I crossed to the left side of the Lake and that evening reached Broadwater, where a high, rocky point extended into the water. On top of this and well up along the hillside were several houses—the place looked like a private resort. There was a small wharf at which the steamboats landed, and the building nearest thereto, and about a hundred yards away, was a vacant two room cabin containing a cast iron stove, table, and board bunk. I took possession of the cabin, and for the first time used the mattress.

Leaving Broadwater on the morning of September 17 I crossed the Lake to Renata, on the right hand side, and then followed that shore. Five miles below Renata, many hundred feet up on the mountain side I could see a railway, with its steel bridges looking like spider-webs. This is a branch line of the Canadian Pacific Railway from Castlegar, which ascending westward, gradually climbs to the summit, near where I first saw it, crosses, descends on the west side to Christina Lake, reaches Kettle River, and then connecting with the Great Northern Railway, follows down Kettle River and crosses



Steamer Minto on Lower Arrow Lake

the Columbia River at Marcus, in the United States. From where I first saw this railway Lower Arrow Lake turns gradually to the left, soon has an almost due east course, which it maintains to Castlegar. As I kept down the right hand shore the railway rapidly descended, and before Castlegar was reached was close to the water. That night I slept in a clump of willows on a low, flat beach, and as no boughs were obtainable was certainly glad to have the mattress.

At noon of September 18th I reached Robson on the left hand side of the Lake, and then continued a little over a mile farther to Castlegar. Just above Castlegar Lower Arrow Lake terminates. It is 60 miles long, crescent shaped, is variable in width, in the widest place a mile and a half, but at its lower end is not much over a quarter mile wide. It is 537 feet deep. Its shores are not as rugged as those of the upper lake, and there are many low, open places under cultivation. Robson is the southern limit of steamboat navigation, and the steamers Bonnington and Minto passed and re-passed me frequently after Arrowhead was left.

Castlegar is a railway junction, is on the right hand side of, and about a half mile from the Columbia River, which here turns abruptly to the right and flows southward. The Canadian Pacific Railway has a bridge across the Columbia there, on its branch extending through Nelson on the Kootenay River to Proctor on Kootenay Lake. The railway continues south from Castlegar, following the River to Trail; where it turns inland to Rossland, connects with the Great Northern Railway, enters the

The Lion's Head at Castlegar, Looking Up Stream

United States and crosses the Columbia at Northport.

Just above the railway bridge at Castlegar is the beginning of swift water. At this point the Government maintains a ferry boat—the only one on the British Columbia section of the Columbia River—and by the time I reached the ferry landing the weather had become threatening. Stopping, I questioned the ferryman about a camping place and learned that just below the bridge, on the right, was a meadow where I would find a suitable place. Dropping down in the current, passing under the bridge, in about a half-mile I reached the meadow, and selecting a place in a grove of small pines that skirted it, I set up the tent on level ground, about twenty feet above the water. Immediately across from camp, on the east side of the River, was a large sawmill—logs evidently being brought to it from the interior by rail.

After getting settled I walked, through the timber, to Castlegar, to get some supplies. The place is small, consisting mainly of a railway depot, hotel, store, and a few dwellings. A gentle rain fell all afternoon, and that night developed into a heavy downpour, almost flooding my sleeping place. The weather continued inclement all next day, and it was not until September 20 that I broke camp.

I had come through no rough water since leaving Steamboat Rapids, and had had more than 150 miles of good going, except for occasional head wind, but now was to encounter more rapids than ever. A mile below Castlegar the Kootenay River joins the Columbia. The Doukhobor settlement of Brilliant is a

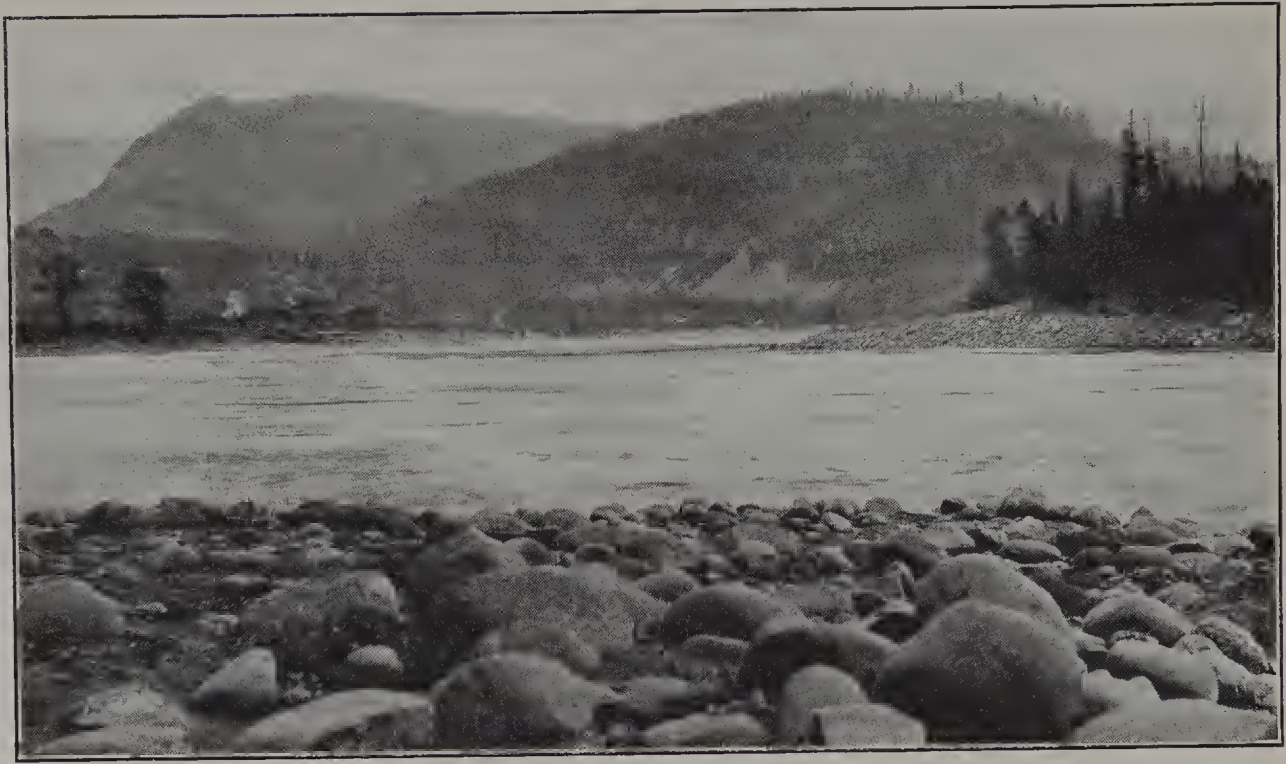
—*Photo. by Forde*

Tincup Rapids

short distance above its mouth. In the Columbia, just above the Kootenay, are Big and Little Tin Cup Rapids. They were rather choppy, but I ran them without trouble. A half mile farther was Kootenay Rapids, a mere riffle, easily run; and a few miles farther China Rapids, another riffle, and then ten miles of good water. Thirteen miles above the town of Trail I had reached a small Doukhobor village, almost out of sight on a high bench on the left hand side of the River, when a man standing on the shore hailed me. Rowing to where he awaited me I found that he was a young Doukhobor who wanted to cross the River to a place four miles down stream where he expected to get employment. He was a lively, talkative chap, and although he claimed that he was born in Canada his English was almost unintelligible. Russian is the language spoken by his people. I took the young man aboard and landed him at his destination.

The Doukhobortski, or "Christians of the Universal Brotherhood," commonly known as Doukhobors, are a peculiar, fanatical, religious sect emanating from Russia. They are industrious, provident, and moral; will not lie, cheat, swear, or fight; have considerable property; but are extremely jealous of whatever they consider to be an infringement upon their rights; and have their own peculiar and extreme methods of expressing their opposition and resentment. On September 2, nineteen days before my arrival there, the following article appeared in the Northport News:

> "A ripple of excitement was caused in the ordinary calm of our quiet city last Friday by the appearance of



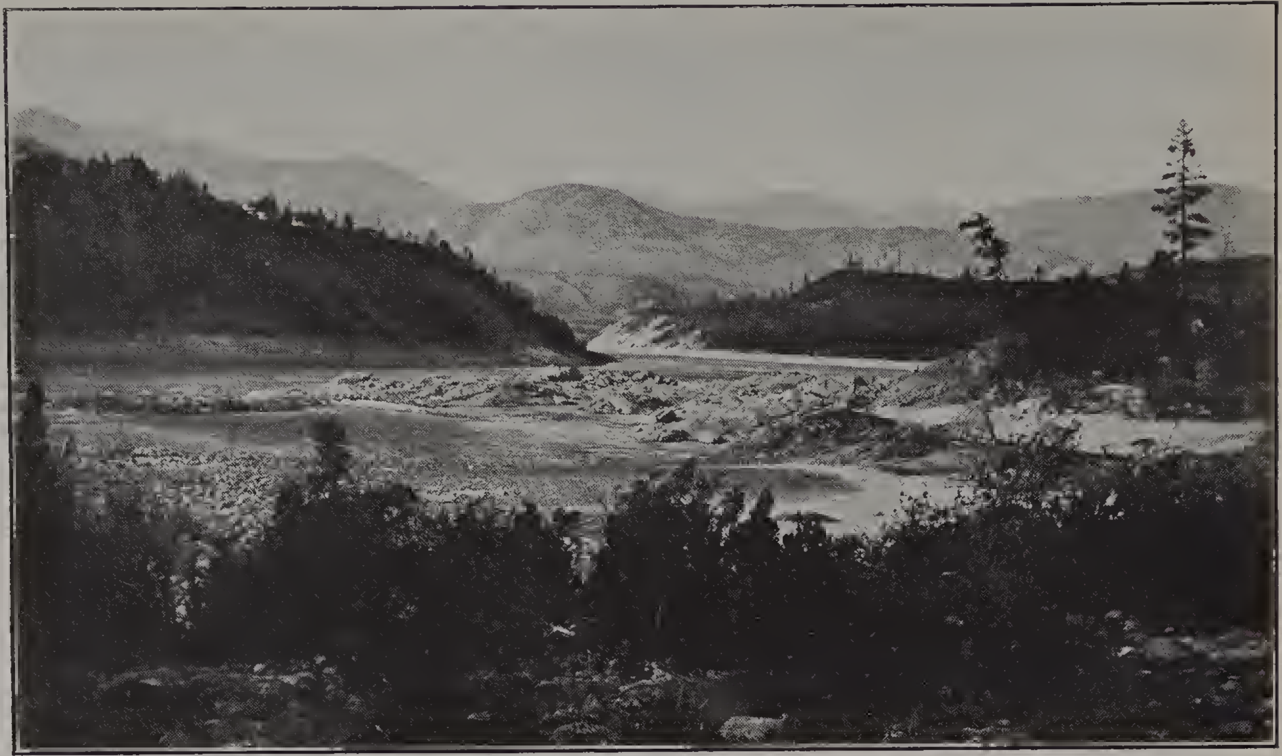
Mouth of Kootenay River

four Doukhobors (two men and two women) who walked in from their settlement above Trail in British Columbia. Having no passports, they were stopped by United States Immigration Inspector O. S. Davis, who ordered them to return and instructed them to be at the depot in the afternoon when railway tickets would be furnished them to return home. They then went about the city singing their quaint hymns, the words of which, though not understood by their hearers, were far from musical. They were bareheaded, dressed in white suits, evidently the product of the hand-loom, and their shoes were hand-made of some similar material. They do not wear leather nor eat meat, as they do not believe in killing any animal. When asked what they came here for they answered, 'To see the people.'

"When the afternoon train arrived they were not to be found, so Inspector Davis started out and rounded them up. He turned them over to Chief of Police Tom Martin, who entertained them in the city jail until Saturday, when the Inspector escorted them back into British Columbia and let them go.

"By the time he had arrived back in Northport he heard they were on their return here.

"They arrived some time on Monday and were soon discovered by the Inspector. They pleaded so hard not to be placed in jail that they were permitted to stop over night in the home of Mr. Eliuk (who could speak their language) in the Corbin addition. About 9 o'clock the Inspector went after them. When they were on the street with him, instead of obeying his command to go to the depot, they divested themselves of every stitch of their clothing and proceeded down the street, going west past Arthur Featherkile's ranch home, and thence down the railroad track. Mr. Featherkile took a short cut and headed them off at the lower end of the Raffle Janni meadow, about a mile below the city. He ordered them back, but instead of obeying, they sat down. In



The Columbia River Above Trail, B. C.

> the meantime, the Inspector, who had gone for help, started after them, carrying their clothes, with a big crowd of men and boys following him. When they came upon them, the poor, deluded creatures followed the Inspector to the Raffle Janni ranch house, where they donned their clothes, and then meekly followed the Inspector to the depot, where they took the morning train for Marcus, where they were ordered deported, and were taken to Nelson, B. C., on the afternoon train.
>
> "They were treated with all due consideration by the Inspector and all others here, notwithstanding the shocking, shameful, and revolting exhibition they made of themselves."

After my return home the *Los Angeles Times* published quite an extended article on the Doukhobors, describing performances similar to the one above related; and an additional new phase of the Doukhobor character. The leader of the sect in America is Peter Veregin, and he is considered by his followers to be divine. He had recently advised his people to drown all their children under ten years of age in the Columbia River, sell all their possessions, and take to a wandering life.

After parting with the young Doukhobor I continued on to Trail, but before reaching it ran through a small rapid, just above the town. It was noon when I landed, and as there was no place on the beach to prepare a lunch for the first time on my trip I was compelled to go to a restaurant.

Trail is on the right hand side, here the south side of the Columbia River, and has a population of 3,500. It is in the heart of a great low-grade mining district. Although some farming is carried on, its principal reliance is on the mines and its great smelter. The smelter is operated by The Consolidated Mining and Smelting Company of Canada, Limited, and employs from 1,200 to 1,500 men, with a monthly payroll of $100,000; and is said to be the only plant of its kind on the North American continent refining five metals—gold, silver, copper, lead and zinc.

Remaining at Trail about an hour I passed under the highway bridge spanning the Columbia just below the town, ran another small rapid, and two miles farther came to Rock Island Rapids.

From now on the rapids are of a different character from those upriver. Whereas the rapids of the Big Bend are caused by the native rock obstructing the channel, hereafter, for hundreds of miles, they are due to blocks of basalt, of varying sizes, which have been dropped by former glaciers, not only in the River channel but along the shores.

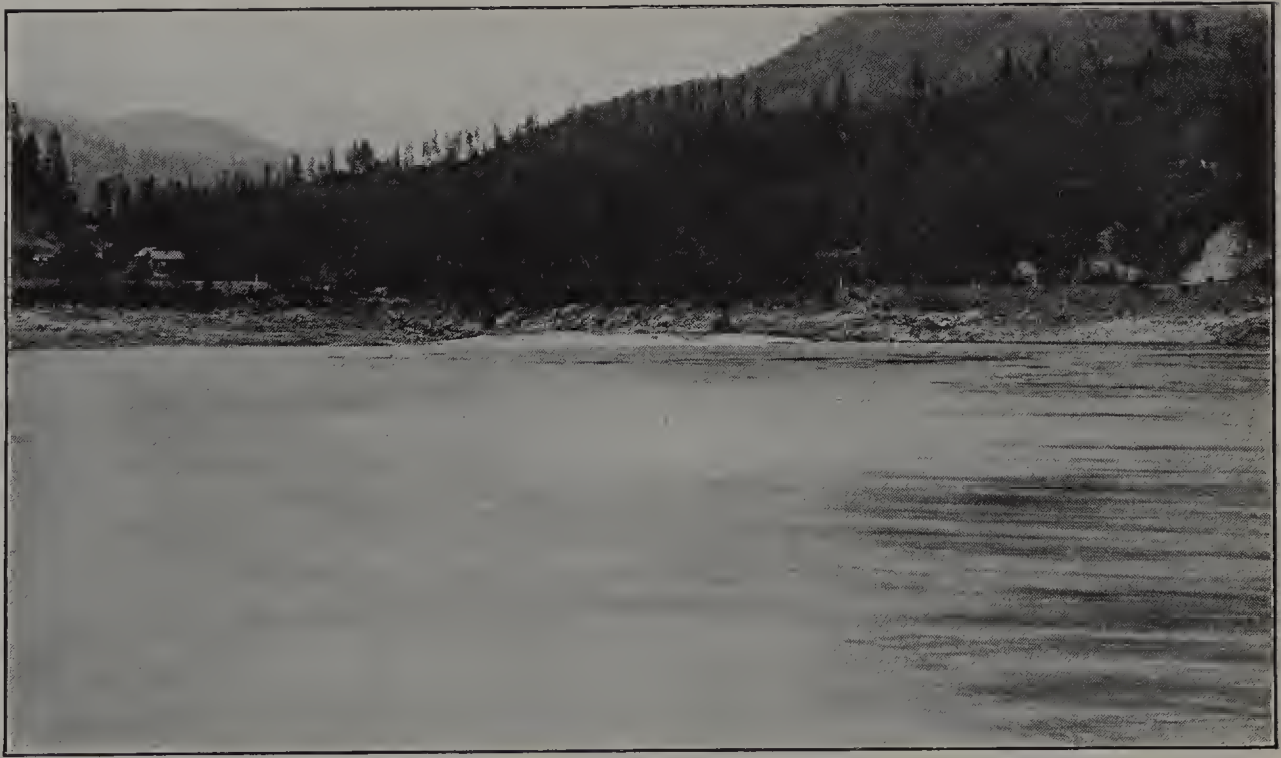
The first of these is Rock Island. Here the River is divided into two channels by the great mass of basalt that gives the place its name. The left hand channel is boisterous, has a bad reputation, being responsible for the loss of several lives. The right hand channel is without breakers or whirlpools. A swift, smooth current descends it, and I found it easy to run. Three miles farther I came to Salmon River Bar, then two small riffles, of minor consideration, and near the end of the day reached the mouth of Pend d'Oreille River.

Pend d'Oreille River, also known as Clark's Fork, is the second largest tributary of the Columbia River, which it joins, from the east, about a half-mile above the International Boundary Line. It is

The Columbia River at Trail, Showing Smelter longer than the Kootenay River, but carries less water due to the more arid nature of the country through which it passes; its entire course being in the United States except about the last fifteen miles which are north of the Boundary. It falls into the Columbia in a cascade about ten feet high.

When I reached the mouth of the Pend d'Oreille I knew that the Border was near and began to look around for Waneta, where the Provincial Inspector is located, and where I must report before crossing into the United States. The only likely looking place that I could see was a large frame building on the left shore, and opposite to which I went ashore. The building was a hotel and the landlady informed me that Waneta was a half-mile upriver. The Great Northern Railway reaches the Columbia River, from Spokane, at Marcus, follows the left hand shore, northward, crosses the Pend d'Oreille at its mouth, to Waneta, and turning inland extends to Nelson on the Kootenay River, I walked up the railway track, crossed the Pend d'Oreille on the bridge, to Waneta—consisting of a depot building and a couple of cottages—and reported "out" at the Inspector's office in the depot. Returning down the railway track I dropped my boat down the River until I found a place to camp, on the left shore on a bench about fifty feet high, on United States territory, a quarter mile below the Boundary, and there set up my tent within twenty feet of the railway track.

After getting camp established I walked up toward the Boundary, where just south of the Line there is a small store. On the way I discovered a



Mouth of Pend d'Oreille River, One-half Mile Above International Boundary monument marking the exact line of division between the United States and Canada—and consequently on the forty-ninth parallel of latitude. Extending east and west to the top of the mountains, on both sides of the River, a brush line twenty feet wide has been cleared through the timber to indicate the Boundary. The monument is just west of the railroad right-of-way, is of copper bronze four feet high, ten inches square at the base, tapers slightly toward the top which ends in a sharp peak, and is set in a concrete base. It is inscribed on three sides—the letters being cast in the metal. On the north side is CANADA; on the south, UNITED STATES; on the east 181, treaty of 1846, established 1857-1861, surveyed and marked 1903-1907.

About fifteen feet east of the monument is a Bench-Mark (an iron pipe closed at the top with a cap) on which is indented this information: U. S. G. S. B. M., 1,358 above sea.

A photograph of the monument and bench-mark taken too early in the morning failed to develop a clear picture, and an illustration of this important landmark is reluctantly omitted.

CHAPTER XVIII

FROM THE FERRY TO THE BOUNDARY

The Valley, Timber, Farms, Rainfall, Geology; Comments on the Canadians and Their Method of Handling the Liquor Problem

The Columbia River and the country it traverses has been pretty well described between the Ferry and the Boundary, but a general review might not be amiss to cover any features that have been omitted.

As we know the River expands considerably between the Ferry and Canoe River, where it again becomes a narrow mountain-locked stream to Steamboat Rapids, expands again to Upper Arrow Lake, and loses its character as a river for 121 miles to Castlegar, where it again becomes confined and narrow. In spite of accessions from many sources in the 270 miles below Canoe River, at Trail it is but 350 feet wide and continues of that average width to the Boundary.

The mountain slopes are heavily timbered to the high water line until the Narrows are reached where the trees become smaller and more scattered, the pine begins to predominate, and lumbering ceases.

As has been described, farming is carried on wherever the lay of the ground permits, and such places are frequent, especially along the Narrows. The Narrows is the beginning of what is called the

"Dry Belt," the rainfall decreases to 30 inches by the time the Boundary is reached, and irrigation begins to be resorted to. A noticeable feature of the River's banks, after Robson is reached, are the frequent high benches on both sides. These vary from forty to two hundred feet high (many even higher), sometimes continuous for miles. On these benches are the farms and orchards, and there are many of the latter.

The geological formations are much the same on the west side of the Big Bend as on the east side, with the exception of the many gravel beds of the ancient river channels. At Revelstoke granite and gneiss make their appearance; and below there to the lower end of Upper Arrow Lake there is granite, granodiorite, syenite, slate and limestone. At Lower Arrow Lake there is granite and syenite, and below limestone becomes the predominating formation, although there is much basalt, glacier deposited. For practically the whole distance below Canoe River the country is mineralized, with a variety of minerals, a list of which has already been given.

Before bidding farewell to British Columbia I want to say a word in regard to our cousins across the Border.

I found them almost uniformly unsuspicious, kind and hospitable. I went among them an alien and a stranger and they extended to me the right hand of friendship—for which I thank them. They are more reticent than we *United Staters,* less loquacious, but what they have to say is to be depended on. I found no petty thieves among them (except the Jew who stole my gloves at Canal Flat, and he was just from the States) and could leave my things unguarded for days without fear of loss—something I could not do after getting into my own country.

There is one thing, however, that the Canadians seem to resent, and that is, that the people of the States arrogate to themselves the only right to be called "Americans." When I crossed the Border going north the Government Inspector required of me my nationality and when I told him American he said that would not do as the Canadians were Americans also—he had me stumped as my family has lived in the United States 260 years, and I knew nothing else to call myself.

Another thing I noticed was that there appeared to be no physical weaklings in the country. Whether that is because the ruggedness of the country develops a rugged people, or because the climate is too severe for sickly people to live in, I do not know, but I do know that everyone I met seemed strong and healthy and able to endure hardships.

I have only one cause of complaint to register during my residence of 112 days in British Columbia, and that is against the Crow's Nest Pass Lumber Company, Limited, at Wardner, where I made my first purchases. The Company owns the whole hamlet, including the store. When I arrived at Canal Flat and examined what had been ordered I found several articles short, and that some of the paint was the wrong color. I had been charged top prices—of which I made no complaint—but the shortage was vital. I wrote the Company three times asking them to rectify the mistakes—as I then considered them—but received no response.

I am constrained to believe that the motto of the Crow's Nest Pass Company, Limited, is the antiquated and long since discredited one among modern and successful business men of *caveat emptor.*

There is just one thing more I want to say about British Columbia, and that is its method of handling the liquor problem; which seems more sensible and successful than our own attempt at drastic, national prohibition; for the deplorable conditions that have developed in the United States since the adoption of the Eighteenth Amendment to the National Constitution do not prevail there. The Canadians enforce their laws.

From a dependable source, in Revelstoke, I have received the following statement:

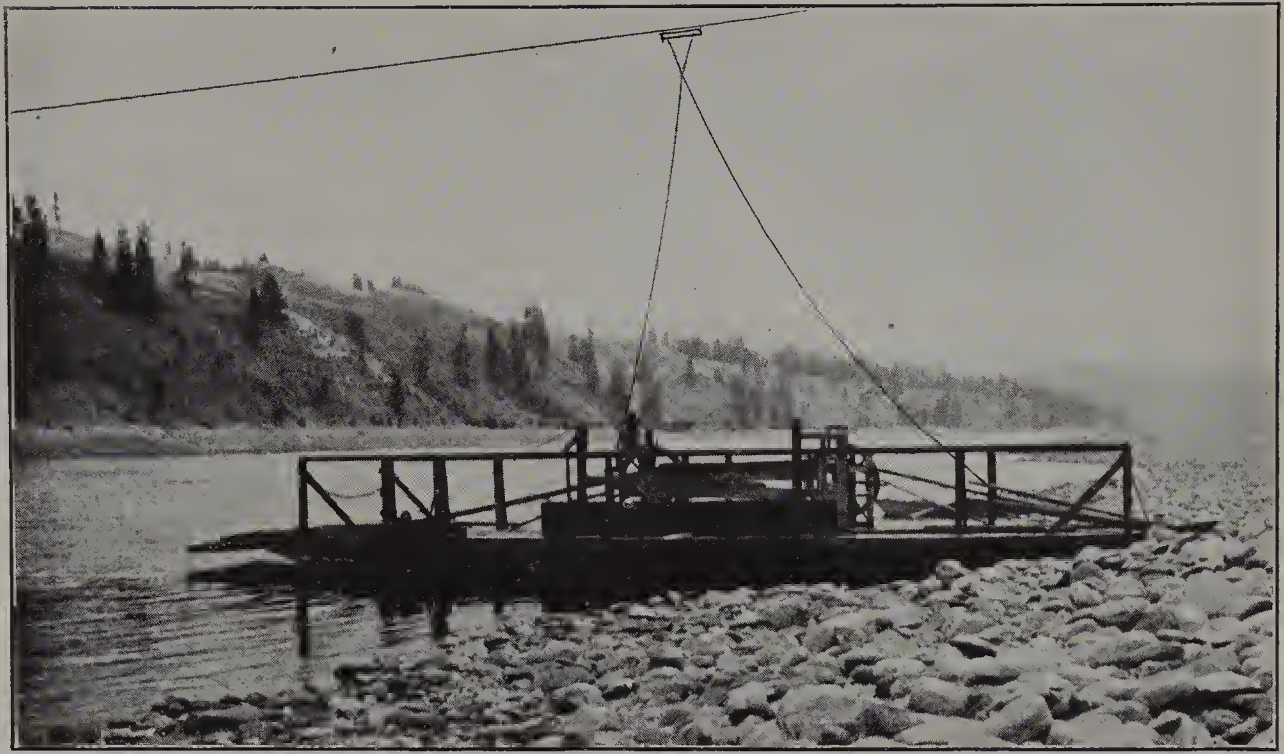
> "1. Spiritous liquors are largely imported from Scotland, though some rye is received from Eastern Canada distilleries. 2. The places where it is distributed are called Government Venders' stores. 3. It can be purchased every day but legal holidays, Sundays, and election days—only eight hours in any one day. 4. The restrictions regarding its disposal and purchase include the obtaining of a permit—single permits are 50 cents, $5.00 for the year. A single permit allows the purchase of three bottles. A year's permit allows the purchaser to obtain the liquor at any time. This includes beer. Breweries throughout the country manufacture beer. Local consumption is all channeled through the Government Liquor Store, with right of export allowed to foreign countries. Venders are instructed to use discretion as to quantity to the individual, especially if intoxicated. The Revelstoke Local Vender has frequently refused sale on these grounds. 5. The penalty for illegal sale or distribution is six months hard labor for the first offense, and one year for the second."

CHAPTER XIX

FROM THE BOUNDARY TO GEROME

Leaving the Boundary September 21 I ran two small rapids and reached Northport, the first town on the Columbia River that is within the United States. Its business section is well back from the River on gradually ascending ground. The great Northern Railway between Spokane and Nelson following the left shore skirts the western edge of the town; and a branch crosses the Columbia on a bridge and extends to Rossland, B. C.

It was here that I saw the first privately owned, and current-operated ferry on the Columbia—they became very numerous as I continued my journey. These ferries are made possible by stretching a wire cable across a river, from shore to shore, and fifty feet or more above the water. Sometimes the shores are high enough to give the needed clearance, but if not the cable must be passed over towers set on the shores and then secured to the ground. On the cable is placed a trolley traveling on grooved wheels. Descending from the trolley are two small steel guy lines attached, at their lower end, to a wheel on the upstream side of the ferry boat. These guys are long enough so that the boat will trail, in the current, below the overhead cable. When the ferryman wants his boat to cross to the opposite shore, after casting loose, by means of the wheel he shortens the outshore guy and lengthens the inshore one. This



Hunters Ferry

operation throws the inshore end of the boat down stream and places it in an inclined position with the current, which striking the upper side of the boat, diagonally, forces it toward the desired shore, the trolley trailing slightly behind and traveling along the cable.

Northport is a small place—a typical country town—its only variation from the ordinary being a smelter, which was not in operation when I arrived. The United States Inspector has an office here, located at the railway depot. It was necessary that I report to him that I had crossed the Boundary, and hunting him up I told my story and presented my credentials. A deputy was sent down to where I had landed near the ferry boat, and after inspecting my outfit he passed it, and allowed me to proceed. The railway bridge is at the lower end of the town. I passed under it and a half-mile farther ran a minor rapid called Bishop's and then in five miles came to the Little Dalles, which everyone had advised me not to attempt to run because of a dangerous whirlpool at its head. Heeding this advice I landed in a bay of calm water to the left of the entrance.

The Little Dalles is one of the most contracted sections of the Columbia River. The contraction has caused the River to expand above to a width of possibly 1,000 feet—the expansion being to the left. The place is a gloomy gorge cut through the limestone. The main channel is on the right against the mountain side. To the left of that is a large rock, and then a short, diagonal, narrow channel. The left wall of the gorge is about 70 feet high, with its top water washed, roughly level, and extending about 400 feet to a bench, 60 feet or more, higher. The right wall is about as high as the other but merges into the steep mountain slope. The main channel, at the entrance, is about 200 feet wide, while the smaller is about 20 feet. The whirlpool is where the two channels unite. About a quarter-mile below the entrance the gorge is blocked by another large rock, and there are again two channels, the right hand channel being about 150 feet wide, and the left but 50 feet. All the way through the gorge until the second contraction is passed the water is deep, dark, and quietly swirling—there are no breakers. Just below the second contraction the gorge expands, on the left, into a small bay of quiet water, and after rounding a point the River widens, is plentifully sprinkled with rocks, a swift current begins, and each rock has its streamer of white water. This latter condition is short, and below, although the current is swift, everything is tranquil.

At the Little Dalles the flood waters rise higher than at any other place on the Columbia River. Every year the 70-foot walls are covered, and drift against the side of the bench, on the left, shows that at times a height of 100 feet above low level is reached.

I had found two prospectors encamped in a tent at the Little Dalles when I reached there. They had been located about a week and were working on a silver-lead ledge they had found in the left hand wall of the gorge, into which they had driven a tunnel about nine feet. The vein matter was be-

—*Photo. by Forde*

UPPER END OF LITTLE DALLES

tween porphyry walls about thirty feet apart. The prospect looked very promising. I had some of the ore assayed and it ran $85.00 to the ton.

Being influenced by the warnings given me, and not being able to get close to the whirlpool at the head of the gorge to examine it, I decided to portage a part of the Little Dalles—from its head to the small bay of quiet water below the second contraction, a distance of about one-third of a mile. I regretted later that I did not run the whole thing for the whirlpool that I feared could not have been worse than some I passed safely through before the end of my trip.

I had pitched my tent on the hillside near where I had landed. Above me, on the bench, were the remains of a burned down farmhouse, and near it was a neglected apple orchard. Leading down to the River from the top of the bench was a partially brush overgrown road, evidently used for portaging purposes, or by the farmer to haul water from the River—probably the latter as I saw no well on the place. From the upper end of the wagon road I found a trail leading across the bench to the small bay I have mentioned. The trail had not been used for a long time and was much filled with rotten logs, but two hours' work cleared it sufficiently so that a wagon could travel it.

The Great Northern Railway track was about a quarter-mile east of my camp, and down it, a little over two miles to the southward, was Marble station, where J. G. White & Co., of New York, had an 800-acre apple orchard. This seemed to be a likely place to get a team and wagon, and the next day after my arrival I walked down the railway track until I reached the orchard. Here I found everyone busily engaged, either picking, hauling, packing, or shipping apples. The first teamster I met told me he owned his own team, was not free during the day, but would come to my camping place after dark and do the hauling required for the portage.

Returning to the Little Dalles I first cleared of brush the old road leading to the bay at the head of the gorge, and then went to my camp to prepare a lunch. In my absence some new arrivals had appeared on the scene and were busy taking photographs of each other on the rocks near the little left hand channel. They were four ladies who had come down from Northport in an automobile for a day's outing. I learned the names of two of them—Mrs. R. A. Young, and Mrs. L. E. Critchett—the names of the other two I fail to recall. I looked rather tough, and the ladies were at first afraid of me, considering me (as they afterwards told me) to be a bootlegger. I explained to them who I was, what I was doing, and showed them the various photographs taken between Canal Flat and Revelstoke, and becoming convinced that I was not as dangerous as I looked, they became very friendly. They were intelligent and cultured ladies and I whiled away several pleasant hours that afternoon with them, while waiting for the team from Marble. They left for Northport before dark and on departing loaded me down with roast chicken, fruit, and other delicacies which were very acceptable to me after having lived so long on camp fare.

To prepare for the portage I pulled down the tent, and got everything together in compact shape for loading in the wagon, except the sleeping bag, mattress, a few cooking utensils, provisions, and firearms—the latter I always kept, loaded, at my side as I slept. These things I carried to the old orchard and spread my bed under an apple tree, with nothing overhead but its boughs.

At my new camp there was plenty of old lumber lying around—what was left of the farmhouse—and with this I made a large bonfire to serve as a beacon for the man with the team. Shortly after dark I heard a hail from the hillside on the east, and apparently three-fourths of a mile away. A wagon road led eastward from the old orchard to the hill and there joined the main road between Marble and Northport. Following this road, calling as I went and getting an occasional response, I reached the junction of the roads, and there found the man I had engaged, waiting with his team and in doubt how to reach me. He seemed rather timid and I guided him to the head of the inclined road and then down that to the River at the beginning of the portage. The prospectors had promised to help load the boat on the wagon, and the three of us easily lifted one end to the teamster, who remained above, then slid her forward as far as the length of the wagon permitted, and bound the front end down with a chain. My outfit was then loaded in the boat, and with the aid of a lantern I acted as guide up the wagon road and over the trail to the top of the bench above the little bay where I intended to again take to the water, and here everything was unloaded.

Guiding the teamster back to my camp I there dismissed him and turned in for the night.

The land at the Little Dalles is owned by Dr. Wells, a relative of Mrs. Critchett, who proposes to erect a dam there to impound the water. It is the most ideal location, as far as cost is concerned, of any place on the Columbia. The foundation is good, the gorge narrow, and the walls favorable. A minimum amount of material would enter into its construction. I tried to find out something about Dr. Wells' plans, but was unable to get in touch with him.

It took me until noon of September 23 to get my boat and load down the steep side of the bench at the little bay. Three trips were required to carry the few things I had used at the orchard and place them with what had been carried on the wagon. Then came the task of getting the boat down about 400 feet of steep, crooked, rocky trail to a small, sandy beach below. This was accomplished by making three short rollers to ease the boat down on—as sliding on the rocks would have ruined the bottom. Some lifting was necessary, but the main difficulty was in keeping her from sliding so fast that she would be "stoved up." The only way to prevent this was by dropping her down backwards, holding back on the towline and bringing her to a halt before she had cleared the rollers, which had to be constantly carried ahead and placed in new positions. Sometimes it was necessary to make the towline fast to a tree before withdrawing a roller and advancing it. It was a hard, slow task for one man, but was at last accomplished, and the COLUMBIA was again

—*Photo. by Forde*

Lower End of Little Dalles

afloat. Next came the job of getting the load down the trail. This meant nothing but frequent trips, going up light and coming down loaded; but by the time everything was stowed away in the boat I had put in four and one-half hours of hard labor, and was ready for a lunch which I lost no time in getting.

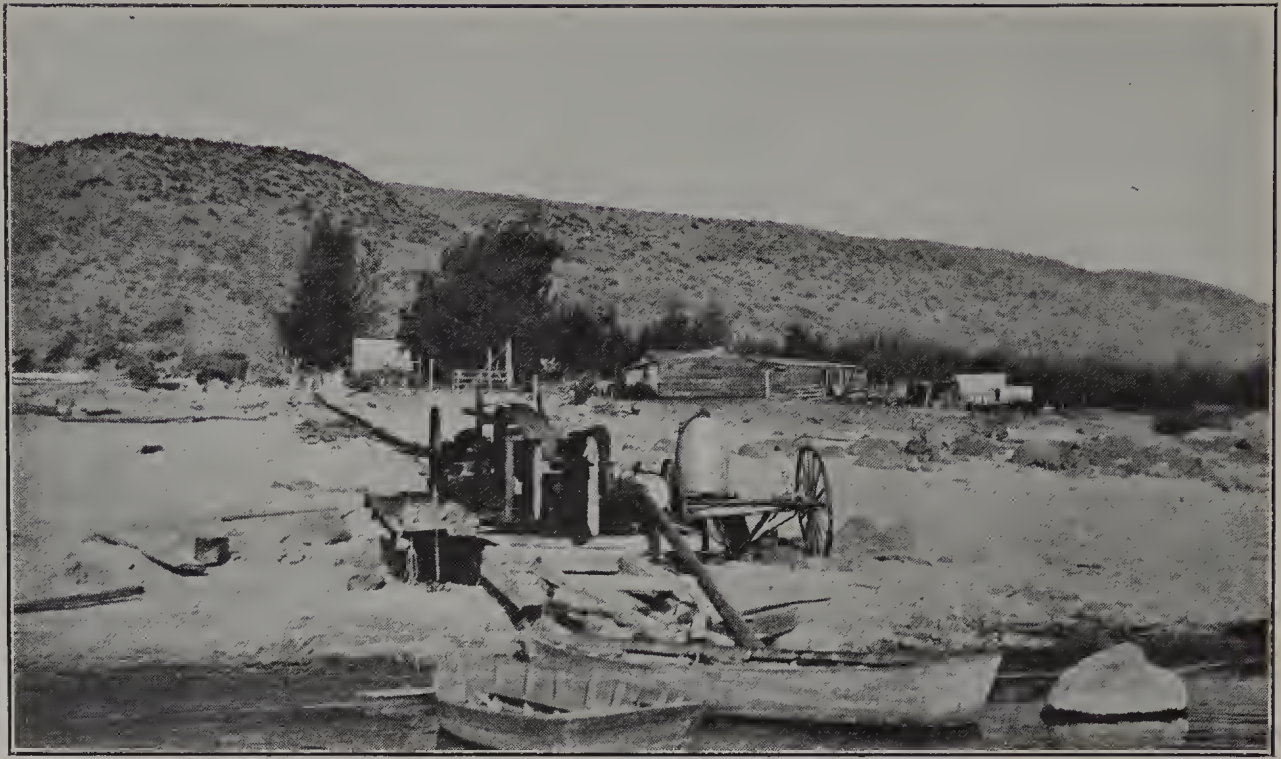
After eating, I pushed out into the bay, to where the whirlpools were circling, but found them innocuous. Then rounding the point to the left, got into the swift current, and could see the protruding rocks and their breakers ahead in the channel. There were a half-dozen of these, but as they were widely spaced I had no trouble in avoiding them.

The next piece of rough water was at Twelve-Mile Rapids, of minor consideration and easily run. Then came Six-Mile Rapids, rather choppy, but I kept well to the right outside of the heavy breakers, and had got half-way down them when I noticed, on the left, a crew of section men. They were on their way on a motor car, such as all trackmen now use, and had stopped it as soon as they glimpsed me. They had evidently never seen a lone boatman shoot rapids in the fashion I follow, or they may have thought I was in trouble. At any rate they were intensely interested and watched my progress closely until the end of the rapids was reached. I waved my hat at them, to indicate that I was all right and, starting their car, they were soon around a bend and out of sight.

A mile below Six-Mile are the Five-Mile Rapids, with a rather rough channel, but good going along the right hand shore. They were soon behind me. Toward evening, as I was traveling along the right hand shore, I came to a low bench on which there was a farmhouse, and landed to find a place to make camp. The surface of the bench proved to be hard, rough, and uneven, and there was absolutely no place to even throw down my mattress and sleeping bag. The beach was even worse, as it was sloping and rocky; and as far as could be seen downstream the shore conditions were no better. The farmhouse was occupied, and I knocked on the door, thinking that perhaps there would be shelter for me inside. An old man came to the door, and I explained to him that I was descending the Columbia in a rowboat, wanted to stay over for the night, could do my cooking on the beach, but that the ground was too rough to sleep on. The old gentleman's name was Boyle. He was alone in the house with a small boy whose father owned the place but was absent on some work that kept him away from home. The boy's mother had deserted the family; Mr. Boyle was acting as both mother and father to the little fellow, and keeping the place in order. There was no extra bed in the house, but I was told there was fresh, sweet hay in the barn, a couple of hundred yards away, and I was welcome to sleep on that. This suited me exactly. It saved me much labor in the way of packing loads and setting up the tent, and assured me a soft bed. Getting my supper on the beach, I carried the sleeping bag, only, to the barn, raised it up into the loft, and making a nest in hay spread out the bag, got into it, and had the softest and best resting place of my trip, not even excepting the one at Fairmont Ranch. I was tired that night especially from the toil in the morning at the Little Dalles, and a change from a thin mattress spread on the ground or a hard board floor was decidedly pleasant. In the morning Mr. Boyle invited me to breakfast, and filled me up with bacon, hot griddle cakes with butter and syrup, and coffee.

The town of Marcus is across the river about a mile below where I passed the night. My boat was loaded in short order and, rowing over to the opposite shore in a few minutes, I landed at the pumping station that supplies the town with water. This was the first pumping plant I had seen on the Columbia. They were to become very numerous downstream, used both for municipal and irrigation purposes. The water is taken from the river and forced through pipes to the top of the benches where the towns and ranches are located and then distributed as needed.

Marcus is on a large, level bench about 150 feet high. It is on the Great Northern Railway that reaches the river here from Spokane. A branch line crosses the Columbia on a bridge and extends northward up Kettle River. As Kettle Falls are about four miles below Marcus, and as it is necessary to make a portage there, I wanted more definite information about them than I had and concluded this was a good place to get it. Climbing the rude stairway at the pumping station, a walk of a few blocks brought me to the business section of the usual small, country town. Here I became acquainted with Mr. Ellis Merigeau, the owner of a garage, who had had some experience on the local section of the River, and who, in addition to information,

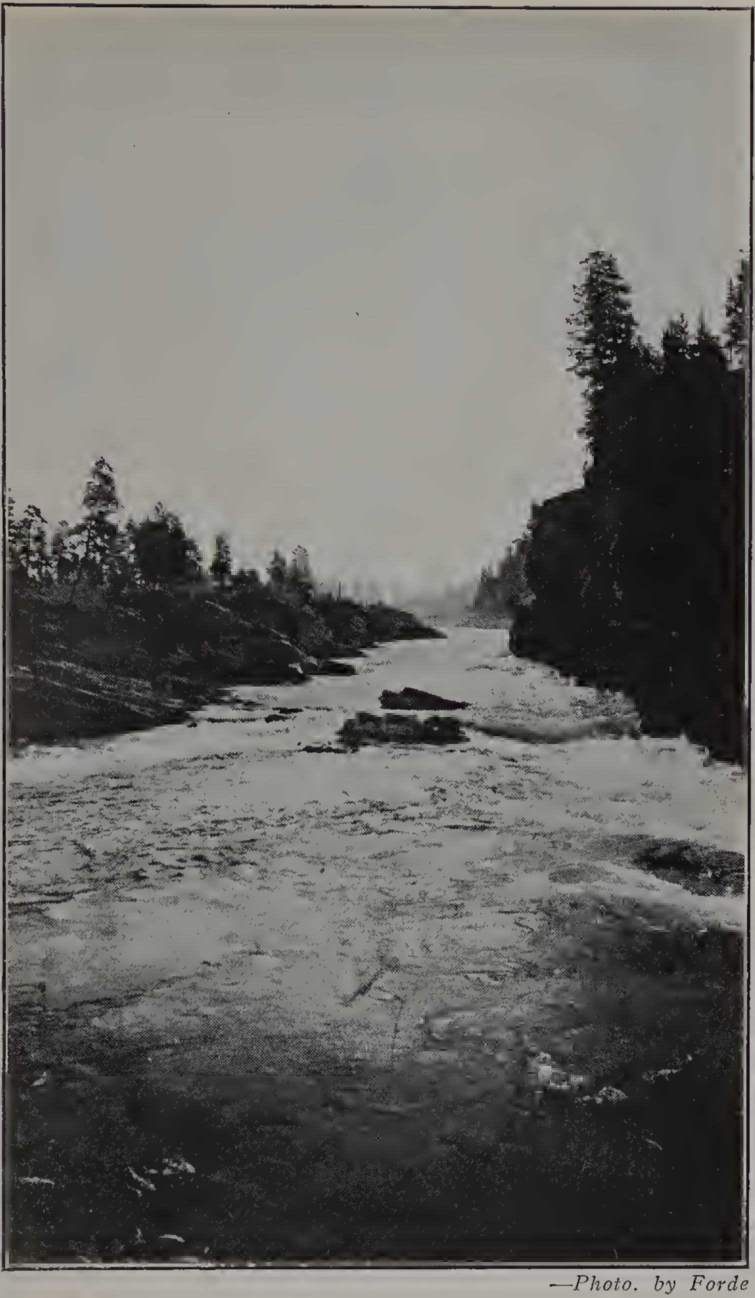


A Typical Pumping Plant

gave me the photographs of Kettle Falls which I am using as illustrations.

After leaving Marcus a short run landed me at the head of the Falls. The River valley is wide here, and not enclosed by high hills. The higher shore is on the right, but the left shore is low at first and the hills are a mile or more away to the east. Southward the ground gradually rises into a considerable bench. The Falls are approached by two tumultuous channels about a half to three-fourths of a mile long. The right hand channel is much the larger and terminates in a sheer drop of about 25 feet. To the left of it is a low rock island, and then comes the smaller channel, about 150 feet wide, and terminating in a series of tumbling cascades. The channels are shallow gorges in the solid rock with vertical walls about 15 feet high. Opposite to the head of the smaller channel, and on the left, a shallow bay several hundred feet in width has been formed by a small creek entering the River from the south. Between the bay and the small channel is a low, narrow, rock point.

When I reached the bay I rowed across it to the narrow rock point and getting as high as possible on the left shore of the small channel walked down almost its full length. I could see across the rock island to the large channel. It meant sure disaster to attempt to run or line either of them, and the portage could not be made directly down the left hand shore. I must get a team and wagon to haul both boat and outfit to the east and south, making a circuit of about a mile and a half to reach safe water below the Falls. About an hour was spent



—*Photo. by Forde*

East Channel Kettle Falls

"sizing up" the situation, and then leaving the point I recrossed the bay to its east shore. Desiring to get a lunch before starting out to search for a team, I was looking around for firewood, and finding none was ready to give up the search when I noticed a man come out of the timber about two hundred yards to the south, and go to the little creek already mentioned, with a water bucket in his hand. Thinking he was a camper, and would have some kind of fire to cook on, I took a pot of coffee and some eatables with me and walked down to interview him. He had returned to the timber and, following him, I came to a farmhouse on the low bench near the creek. On being admitted I found two men and a young woman within just ready to sit down to their noonday meal. A good fire was in the stove and permission was readily granted me to cook bacon, eggs, and coffee. The farmer's name was Brigham, and telling him I wanted to portage around the Falls, he agreed to help me at once, and proceeded to hitch up his team, while I went back to the boat and got things ready for loading. In a short time the two men and myself had everything on the wagon, and leaving the shore shortly reached a wagon road, which we followed. We had not gone far before we passed an old stable which had been erected by the Northwest Company in 1811. The ruins of the Company's old fort I was told were not far away against the hills. A little farther along we passed a former Jesuit mission, empty, and with its doors and windows gone. It had been built in 1837 of the most evenly-sized and smoothly-hewn logs I ever saw, and although not a single nail held the structure together, the walls were still upright, sound, and substantial. Many names were registered within the building on the smooth faces of the logs, and I placed mine among the rest.

The old mission is in the pine timber, on a level bench several hundred feet above the River, and just out of sight of the Falls. After leaving it, the road we followed descended a gentle incline to a point projecting westward into the Columbia about a quarter mile below the Falls, and forming above a wide basin below them into which the water plunges and is churned into foam. This point was the end of the portage, for although the River is suddenly contracted the agitated water expends its force in the basin and only a swift, placid stream, free from obstructions, exists for seven miles downstream to Grand Rapids.

Getting as low down on the point as possible with the wagon, it was unloaded, and then Mr. Brigham and his helper assisted me in dragging the boat over the jagged rocks, from a height of about 150 feet, and launched her in a little cove. I carried my outfit down the slope and loaded it alone; and, as by this time evening was approaching I was able to row but about two miles before it was time to camp, and reaching the Kettle Falls Ferry, a mile above the town of that name, and noticing an empty house on the right hand shore, at the ferry, I landed and obtained permission to sleep in it; and after cleaning one room, made my bed on the floor.

On the morning of September 25, I rowed directly across the River at the Ferry and, making the boat fast at the east shore, climbed to the bench, and

—*Photo. by Merigeau*

Kettle Falls

walked a mile to the town of Kettle Falls. The place is on an extensive flat, well above the surface of the Columbia. In location and appearance the place somewhat resembles Marcus, but is possibly a little larger, and is off the line of the Great Northern Railway, which turns inland at Marcus and ascends the Colville River.

My purpose in stopping at the town of Kettle Falls was to ascertain something definite about Grand Rapids—called locally Rickey's Rapids—which were four miles below, and which had been described to me as impossible of navigation. I had been reading Lewis R. Freeman's story, published in the Sunset Magazine, and he had gone around these rapids, as well as Kettle Falls, on a wagon. I was dodging nothing that could be overcome with a little pluck and labor, and I was determined to "tackle" Grand Rapids. A few inquiries put me on the trail of Raymond (Dutch) Keyser, a young man who was familiar with the Rapids. I soon found him at the garage, and learned what he knew, and what he thought would be best for me to do. He had run the Rapids several times but always at time of high water when there was a safe channel open on the extreme right. This channel, he said, would now be dry, and that the present right hand channel was not navigable, but he thought I could get down the left hand one by lining some of the worst places. This information confirmed my intention of not dodging the difficulties I would possibly meet at the place, and walking back to my boat in a five-mile run I reached, and landed, at the head of the left-hand channel.

Grand Rapids are to be feared by the navigator as much as any other on the Columbia River. The right hand channel, as I saw it, is too rough and rock-filled for either a large or small boat to run it. The upper one-third of the left-hand channel is almost equally dangerous, but the lower two-thirds presented little that would deter an experienced riverman. The River here has considerable width. The right-hand shore is low, but the left-hand one is a bench, fully 150 feet high, with a narrow, rocky beach at its base.

Photo. by Forde

GRAND

I spent considerable time examining the mile length of the rapids and determining the best way to get by the comparatively short stretch of unsafe water at the head of the smaller channel. The plan was this: To line 200 feet, row 200 feet, line 300 feet, portage about 500 feet, and then run the remainder. I could do the lining alone, and by making rollers could possibly make the portage alone by hard work, but the rocks were rough and jagged and I was fearful, that without help to carry the boat over the roughest places her bottom would be ruined, and as she was in good order, I wanted to keep her so. Coming to the conclusion that help was necessary I climbed the bench and struck directly away from the River, through the thick pine timber with which the bench was covered, and passing many hundred cords of fresh-cut stove-wood, in about three-fourths of a mile reached an apple orchard and a farm house. At the house I found an elderly

Photo. by Forde

NG NORTH

couple, two young men, and two grown girls. The day was Sunday and the young men were evidently visitors.

On making my wants known the young men immediately agreed to help me, and the girls following, we all retraced my trail back to the edge of the bench, down which we plunged through the brush, the girls as active as the rest of us, and arriving at the boat began lining (myself rowing the stretch of good water), and reaching the portaging place the load was first carried across (the girls assisting), and we were then able to get the boat over the 500 feet of rocky shore without using rollers. From the time we started lining until the COLUMBIA was launched in safe water, and loaded, not over three-fourths of an hour had been consumed. Before leaving my new-found friends, I photographed the group with the rapids as a background (am sorry to say that the negative was defective and I cannot use it), and then bidding them good-bye, left the shore; and as the current carried me rapidly away they climbed higher and higher on the beach to watch my progress.

Just below where I re-entered the River the rapids are divided by a huge rock forming a small island. The left-hand channel is first deflected to the left by this rock and then turns to the right, and between the rock and the left-hand shore is a considerable whirlpool. I had been traveling stern-first, backing water on the oars, and intended to hold that position as long as the going was uncertain. There were no breakers in the channel I followed, but as soon as the whirlpool was reached the boat began to whirl and reversed ends. There was no sucking vortex in the whirlpool and a few strong strokes with the oars carried me out of its influence and past the rock. There had been a light wind blowing upstream all day, not particularly noticeable above, but as I rounded the rock it developed into a gale—a head wind. At the lower end of the rapids, where the two channels united, was a large protruding rock and wildly agitated water. It was about a quarter-mile below the rock island and the current I was in drew directly toward it. I had passed many similar places, in other rapids, without trouble, but I found that the strong head wind made my boat almost uncontrollable and, strive as I might with the oars, she was drawn directly and rapidly towards the menace. As we came near I could see all its ugly features—first, the black rock, with its white, upflung waves, and then below a seething cauldron of sucking water. It seemed like an angry, roaring monster with wide open, frothing jaws rushing madly at me. In fact it was stationary, and it was my boat that was rushing towards it—but the illusion was perfect. When not over a hundred feet away, pulling quartering upstream, with an extra effort of the oars I managed to pass the rock, on the right, by a bare ten feet—so close that a side splash from a wave struck me fairly in the side, moved me bodily on the seat a foot, and brought aboard about two buckets of water. The blow was like being hit with a soft cushion, and though powerful did not hurt. The whole thing was over in an instant—I had shot by like a flash and all danger was behind me.

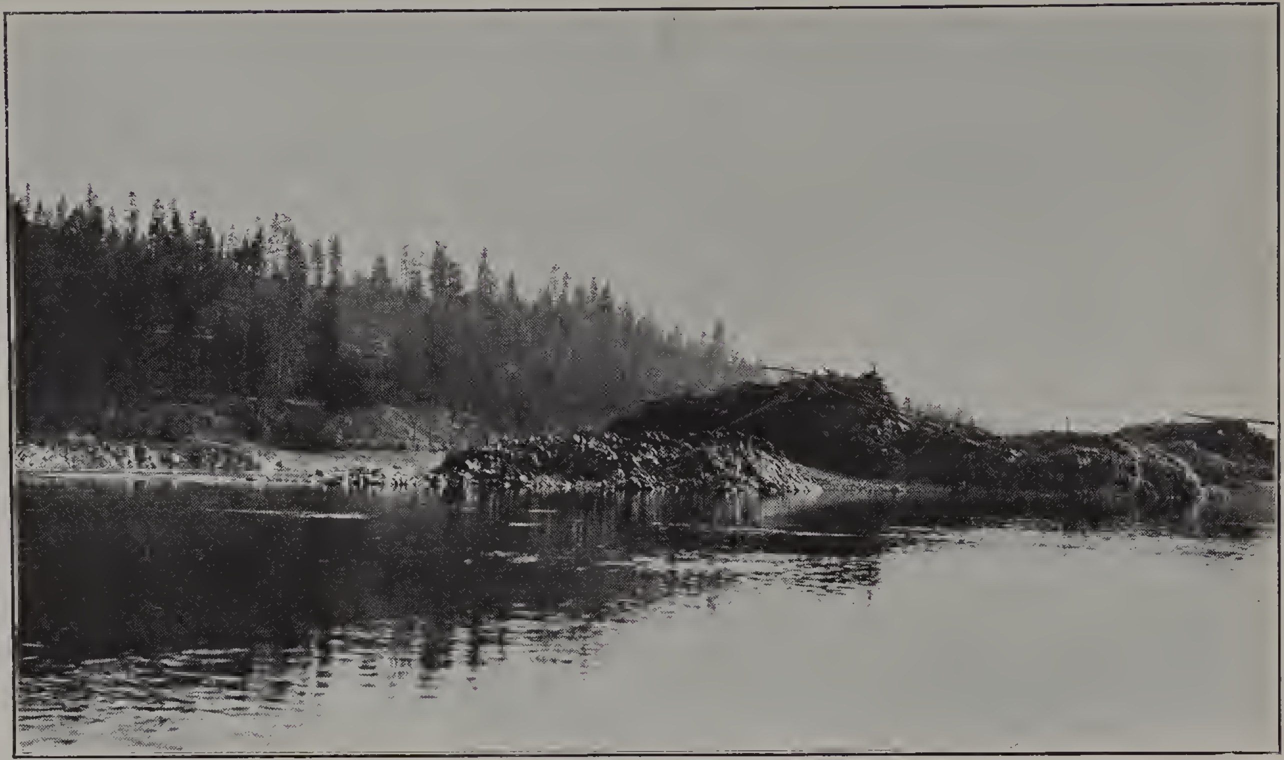
The name of one of the young men who helped me at Grand Rapids is Claud Slentz. After I reached California he wrote me from Colville, Washington, and his letter contained the following paragraph:

> "We were sitting there on the rocks watching you travel the rough waves. Just a short while after you left us you hadn't any more than got off the rapids, and must have got in an awful rough wave because all we could see of you was your hat. My sister grabbed hold of my arm and screamed."

That night I camped on a sandy bench, on the left hand side of the River, about three miles below Grand Rapids, and at a ferry. Two women, fruit pickers, had a tent nearby, and above, on a higher bench was a large farmhouse.

The next morning, following the right-hand shore, in a run of two miles I reached the northern boundary of the Colville Indian Reservation. This Reserve originally had the International Boundary as its northern limit, but has been cut in two and now begins 36 miles due south of the Canadian line and follows the west side of the Columbia to the head of the Great Bend, where it turns westward, along the River, to the mouth of Okanogan River, and then follows that stream northward, until due west of the point of beginning. The headquarters of the Indian agency is at Nespelem, on the Nespelem River about five miles above its mouth. Its superintendent is Mr. O. C. Upchurch, who sent me the following statement:

> "The Reserve consists of one million acres of land south of the township line between townships 34 and 35, and west to the Okanogan River. In addition to this there are tracts of land known as the Moses-Agree-



—*Photo. by Forde*

Driftwood Island

> ment and Wenatchee-Homesteads located on the west side of the Okanogan River, scattered from the Canadian Border, near Loomis, to the west of the Columbia near Wenatchee and Cashmere. There are under this jurisdiction about three thousand Indians belonging to at least ten different tribes, the most populous being, Columbia, Lakes, San Poil, Nez Perce, and Okanogans. Eight hundred thousand acres of the Reserve is classified as timber land, with an estimated stumpage of two billion feet, mostly yellow pine. Approximately half of the Reserve is leased for grazing. The Indians are principally fed and supported by farming and stock raising. Last year they cultivated thirty-one thousand acres of land, and grazed two hundred and fifty thousand more. They raised twenty-four thousand bushels of wheat, and put up five thousand tons of hay; the total value of their farm products being estimated at twenty-two thousand dollars. They have three hundred and fifty thousand dollars in individual Indian money and securities deposited with this Agency. The surplus agricultural lands have been open for homesteads for five years prior to September 5, 1921. During that time practically all the desirable land was taken. The best agricultural land on the Reserve was of course included in Indian allotments before the remaining was opened to homesteads.
>
> "On a bench ten miles from the Columbia River is Owhi Lake where the State Fisheries Department has a permit to take Eastern Brook eggs. They secured during the season just closing more than four million. Our streams and lakes are plentifully supplied."

I had traveled but about three miles along the border of the reserve when I reached a low bench, back of which was another bench three or four hundred feet higher and fully a half-mile back from the River. Near the edge of the high bench was a single building—a little white church, its spire terminating in a cross. The place interested me and I determined to visit it, being also influenced by the thought that there might be a store somewhere out of sight where some needed provisions could be obtained. I found a trail leading to the church, and up this I climbed to the summit where a fence barred the way. I found a gate and was on the point of opening it when an old Indian appeared on the opposite side, who told me that the church was an Indian Mission, but was closed because they could get no priest. There were no signs of a settlement or store on the bench, but the Indian lived at the foot of the hill and said he had some beef for sale. He led me to his cabin and gave me what I wanted. Seven miles below the little white church (which is a prominent landmark and can be seen for miles), I reached the ferry at Inchelium. Hall and Stranger Creeks enter the Columbia here, on the Reserve, and form a considerable area of low ground. On this the village of Inchelium is located about a half-mile back from the River, and I decided to visit it and get some badly needed articles of food. I traveled a sandy road from the ferry and had not gone far before I picked up a silver dime lying in the wagon track—rather an unusual place to find money—but my mind reverted, instantly, to a somewhat similar find I had made in the wilds of Alaska when I was alone on the Unuk River in 1919. I had landed at the mouth of South Fork for the purpose of encamping there and doing some prospecting at a place I knew of twelve miles up the stream. I had carried my luggage from the boat, set up the tent, and started to prepare a meal at a pile of rocks that

Deception Rock

someone before me had used as a fireplace—as was evidenced by the fire-blackened rocks. They were disarranged and as I stooped to place them in an orderly array for cooking purposes, I saw, at my feet, a bright five-cent nickel piece. Whoever had lost it evidently never missed the money, or if he did, he did not know where he had dropped it. If he knew of the loss of the money, and wondered where, should he read this story he will then know that the nickel lay in plain sight at his fireplace at the mouth of South Fork of the Unuk River. I lost it myself, later. On reaching the village it proved to be small, consisting principally of three good-sized general stores.

I did not remain longer at the place than necessary to make my purchases and then walked back to the River. A light but steady head wind blew all day, making progress slow, but by nightfall I reached a point on the left shore about six miles below Inchelium. During the day I passed Driftwood Island, with its crown of derelicts, Rock Bar, and ran two small rapids.

On September 27 I had an experience that seemed for awhile would terminate my journey. The wind had been blowing against me all morning in strong, but fitful, gusts, but by eleven o'clock in the morning I had made nine miles and reached Hunters, where a short stop was made to photograph the ferry. I had noticed that there was a storm on downriver, but anticipated nothing serious. I had gotten below the ferry about a mile and was traveling along the right-hand shore, at the base of some high, perpendicular chalk cliffs when a hurricane of wind burst upon me with sudden fury, the air was filled with flying sand, and the surface of the River was almost instantly whipped into whitecaps. I could make absolutely no progress downstream, rowing was of no avail, and if I ceased the effort, in spite of the swift current the boat would go upstream. I looked for a place to land on the right shore, but everywhere it was too rocky and precipitous. The River was about five hundred feet wide, and the left shore was a sloping, gravel beach about two hundred yards wide, gradually rising to an extensive, low bench, partly open and partly covered with willows. My only recourse was to brave the waves, across their trough, land on the bar, make the boat secure, and seek the shelter of the willows. This I did successfully, and after waiting until the middle of the afternoon and the storm not subsiding, I set up the tent in the most sheltered place among the bushes, placing its rear end to the wind, and with a heavy guy line (made of a section of the lining rope) made the top of the rear end-pole fast to a strong bush. The wind abated none of its fury during the day and before retiring, at night, I drew the COLUMBIA three-fourths of its length out of the water, drove a stake in the gravel beach, made the boat fast to it with the towline, and then piled rocks around the stake, and on the rope. Everything seemed secure and I had no apprehension of what was to follow.

During the night there were three terrific gusts of wind—stronger than the general force of the gale—but as my tent withstood the shocks, and there were no more of them, I did not get up. By morning the storm had ceased, and as soon as it was daylight I arose, and rounding the willows looked to see if the boat was safe—there was no boat in sight! About a mile downstream was a considerable bend, and hastily donning my clothes, I walked down to it hoping to find the boat lodged in slack water. She was not there, nor in sight for a couple of miles below the bend. I was in a bad predicament. All my money, except five dollars, was in a pair of trousers I had taken off the day before. My stove, camera, typewriter, guns, provisions, and change of clothing, and everything but tent, bedding, a few cooking utensils, and axe were aboard the boat. The oars were on the beach where they had been thrown on landing. On account of the difficulty of carrying loads in the strong wind, the two hundred yards across the open beach, only those things absolutely necessary for a rough camp had been unloaded.

I returned to camp, and realizing that there was a strenuous day before me if the COLUMBIA was to be recovered, and it would be wise to eat something before starting on a search, I prepared a meal from the little food left over from the preceding afternoon. Shortly after the storm had driven me ashore, two men—a white man and young Indian—had walked down from the ferry and had seen my outfit. They were the only persons who knew what I had, and as I could see no reason for the trip they made, I became suspicious that they had made way with the boat during the night. Having come to this conclusion I walked up to the ferry for two reasons, the first of which was to examine the shore to see if the wind had possibly blown the boat upstream, and second to find the two men of whom I was suspicious. There was no COLUMBIA to be found, and reaching the ferry I inquired of the ferryman where the white man I was looking for could be seen—describing him as best I could. The ferryman stated that he was in a farmhouse close by, and going there I entered, found the man, and voiced my suspicions. The man told me, earnestly, that he knew nothing about the boat, and thought that neither did the Indian.

I was, perforce, compelled to accept the statement for the time being, and began to think that although the COLUMBIA had withstood the storm all afternoon, the extra strong gusts during the night had set her adrift, and if she was to be found it would be somewhere down the River, either stranded or wrecked. It was up to me to find out.

On account of the rough nature of the left hand shore there is no wagon road on that side for several miles below Hunters. But there is a trail, and following that for three miles I found a skiff, in which there was a pair of oars, drawn up on the shore. Appropriating the skiff, I crossed the River and landed on what is called, locally, the "Indian side." Just above my landing place a high bench begins and extends northward, terminating at the chalk cliffs, already mentioned, and almost opposite to my camping place. Climbing this bench I followed it to the end, a distance of about three miles, looking in every nook where a boat might be concealed, or for evidence of withdrawal from the water, but found nothing. On the bench were two Indian farmhouses, at each of which were a woman and children. None of them had seen a boat floating down the River. Returning to the skiff, I recrossed the River and, leaving her where found, continued downstream. In a half-mile I reached a farmhouse, where there was no one home but the housewife. As it was noon and I was hungry I asked the woman if she could give me a lunch. Instead of that she prepared as bountiful and well-cooked a meal as would tempt the appetite of the most fastidious.

About a quarter-mile below the farmhouse the wagon road from Hunters descends a hill and reaches the shore of the Columbia. I had not traveled far on the road before encountering a man driving a team, and stopping him I explained that my boat had been lost the night before, and asked if he had seen her lodged along the shore. "Yes," he said, "there is a stray boat caught in a riffle about two miles below. She is about twenty feet from the shore, and is surging strongly on the rope that holds her fast." From his description I knew it was the COLUMBIA, and lost no time traveling the two miles and sliding down the hillside to the water. She was forty instead of twenty feet from the shore, and the current was too swift and the water too deep to reach her by wading. Thinking I might lasso the boat by the rowlock with about forty feet of quarter-inch rope, I walked down the road to a farmhouse where they were picking and packing apples. A man was tinkering on a truck, and to him I made my troubles known and asked for what I wanted. He handed me a regular, forty-foot lariat, and at the same time remarked that there was a skiff tied to the shore immediately opposite, and I was welcome to use her. Going to the place indicated, I found the skiff, and although there were oars aboard, the rowlocks were missing—evidently hidden. It was a half-mile upstream to the COLUMBIA, the current was swift, and it took an hour of poling, wading, and paddling to make the distance. Instead of trying to lasso the COLUMBIA, I made the forty-foot lariat fast to the painter of the skiff and secured the other end to the shore so that the current would lay me alongside of the stranded boat and permit me to board her. This I did, and grasping the tow line I tugged hard to free it from the rocks in the bottom of the River, that held it. After some effort the stake, with the rope still tightly wound around it, was raised, but the trailing end of the line, which terminated in a "wall" knot, was so securely caught that no amount of pulling and jerking would free it. Any apprehension that I had had that the boat would tear herself loose before she could be rescued was groundless. I believe she would have been safe where she was for a month. I had to cut the rope to set her free.

The COLUMBIA had drifted down about six miles of river in which there happens to be no rapids. Whether she was buffeted around in the wind and waves when she first went adrift, I do not know, but everything aboard her was undisturbed, and no water had come over her sides. It was a lucky thing that she lodged where she did. If she had been far enough offshore to get by the riffle, there was no place for miles below where an eddy would have held her, or she would have caught as she did. As it was, it was only the green stake I had used, and which dragged on the bottom, that caused the rope to get entangled. If the stake had worked loose the rope would have floated high in the current above the rocks.

Dropping the COLUMBIA downstream about a quarter-mile, I dragged her well out of the water, tied her securely, and then, transferring the money she carried to my pocket, everything else was left aboard. The skiff was next returned to its place, the lariat given to its owner, and I struck out up-river to my camp. On the way I stopped at the farmhouse of Jim Lincoln (opposite my camp) and arranged with him to haul my small amount of dunnage to where the COLUMBIA had been left for the night. My tent was reached after dark and a belated supper prepared. I had walked twenty miles since daylight, but was well satisfied with the day's work. The uncertainty of the morning was dispelled. My only regret was for unjust suspicions entertained against two innocent men—but that was made right later.

Mr. Lincoln appeared with his team in the morning, bringing with him the report that the Hunters ferryman had circulated the story that an old bootlegger had come down the Columbia the day before in a rowboat behind which was towed a keg of whiskey, and that, during the night Tom ——— had got away with the whiskey and the whole outfit.

As has already been stated, there is no wagon road along the River below Hunters, for several miles, and our route was by a roundabout and steep climb through the hills to the east, and among the apple orchards, and then a sharp descent to the River below the farmhouse where I had eaten the day before; after which a "benched in" road clung to the steep slopes, finally reaching a low flat, opposite to the head of which the COLUMBIA was moored. The road was so steep in many places, and so sidling in others, that the team had to walk all the way, and the trip consumed three hours. We arrived at our destination at 11 o'clock A. M., and finding the boat and contents intact I parted from Mr. Lincoln and resumed my interrupted journey.

Just below where the re-start was made, the Columbia makes an "S"-shaped turn, known as Elbow Bend. There are two channels at the bend, both having a swift current, and I followed the right-hand one as being the most tranquil. A half-mile below where I started, the wagon road reaches a small settlement called Gerome, but it is fully a mile and a half by the route I had taken, and it was noon when I landed there. There is a ferry there, a store, a few out-buildings, and a large house some distance away on a hill. As I had nothing suitable for a lunch with me (my usual arrangements had been disturbed by the recent storm), I walked the considerable distance to the store over a rough, boulder-strewn beach, got a "snack" at the store, and some necessary groceries.

After leaving Gerome, I ran to a small, unnamed rapid, and ten miles below came to a high bench on the right, where there were two vacant cabins. Selecting the lower one, which was unfurnished except for a good cast iron stove, after much labor what was needed for the night, including water, was carried up the very steep side of the bench. There was no place to make a bed but upon the floor; and with the thin mattress I always found such a bed a hard one.

CHAPTER XX

From Gerome to Wenatchee

There were still 59 rapids for me to pass through before reaching the Lower Cascades, and tidewater, but as I ran them all, except a short distance at Spokane Rapids, and made no more portages, I will give the minor places but brief mention, and will only describe such as have exceptional features.

I left the cabin on the high bench on the morning of September 30, and skirted the left-hand shore, which is here the west boundary of the Spokane Indian Reservation, a small reserve of 150,000 acres, bordered by the Spokane River on the south, and extending eastward from the Columbia River, in a narrow strip, for about 40 miles. The headquarters are in the interior, at Wellpinit, north of the Spokane River. The Reserve is in charge of Mr. Omar L. Babcock, Superintendent, under Government supervision, having jurisdiction over 673 Indians.

A mile above the mouth of the Spokane River I reached Spokane Rapids—a place demanding investigation before running. The River is somewhat contracted here, the rapids about a mile long, and straight, and the shores are covered with great blocks of basalt, many as large as a small cottage. The agitated current starts at the right-hand shore, runs diagonally to the middle of the River, where

Spokane Rapids

the breakers become high and tempestuous. Between the line of great breakers and the right-hand shore the water is agitated, but devoid of obstructing rocks, and the waves but moderate. My inspection convinced me that the way to run Spokane Rapids was to cut quickly through the streak of rough water at its beginning, get into the milder waves below, and hug the right-hand shore. I might have done this by rowing, but as there was a possibility that the current would draw the boat into dangerous water before I could cross it, and as 200 feet of easy lining assured absolute safety I adopted that method (my last bit of lining), and having nothing to contend with but choppy waves, soon reached and passed the mouth of Spokane River. There is a settlement there called Lincoln, but I did not take the time to visit it.

Four miles below the mouth of Spokane River I reached Hawk Creek, at the head of the Great Bend, where the Columbia, which had been flowing southerly, turns abruptly to the northwest. A few miles farther along I passed a great, sugar-loaf-shaped, white rock, at the water edge of the left shore—one of the prominent landmarks of the River. Not far below White Rock I landed and made camp among the pine timber, on a boulder-encumbered, sandy beach, on the right-hand shore. There were a couple of empty cabins, well back from my landing place, but too far away for me to use, and I spread my bed in the sand under the shelter of a large pine tree.

I had set up the stove and was preparing supper when I heard the put-put, put-put, of a motor boat coming upriver. It was not long before she came in sight around a point. She contained two men. I waved to them to come ashore, which they did immediately. After I explained to them who I was, and what I was doing, they introduced themselves. The engineer was Earl Houston, and the name of the other was Fitzgerald. They were returning from a place below called Barry, to which point they had towed a raft from Gerome for a man named Ike Emerson. As I came through Northport I purchased a copy of the Sunset Magazine, which contained Lewis R. Freeman's narrative of his experience with the section of the Columbia from Spokane Rapids to Chelan. Freeman had met Emerson at Gerome and engaged passage for himself and photographer on a raft that Emerson was about to take downriver. Mr. Houston is the Earl of Freeman's story who was the engineer of the motor boat that towed the raft, on that spectacular trip.

Before leaving, Houston told me that about three-fourths of a mile upriver, on the same side I was on, he had a cabin—his half-way stopping place—where there was a garden with fruit going to waste, and he asked me to go up there after finishing the evening meal and we could have a talk, and he would give me some watermelon. I had had plenty of other fresh fruit to eat after leaving British Columbia, but no watermelon. The opportunity of getting some was too good to be overlooked, and a short time later found me on my way up the trail to Houston's place. The evening was spent with the two men talking over my own trip down the Columbia and Freeman's experiences as related in the Sunset Magazine, which I had brought with me for them to read. I had all the watermelon I could eat, and when I started back to my camp, Earl asked me to come up again in the morning, saying he would have a lot of different kinds of fruit ready for me, and would take me back to camp in the motor boat. In the morning, after breaking camp and loading the boat, I again hiked up the trail to the cabin, got the fruit, made the little motor boat trip, and then resumed my journey, leaving the two men standing on the shore, watching until a bend hid me from view.

Below White Rock the Columbia is quite crooked, the hillsides are steep and as each bend is approached the impression is given that a cañon is ahead, but as the turn is made, the illusion is dispelled and there is no real closing in of the River's shores until Hell Gate is reached, fifteen and a half miles below Hawk Creek. Hell Gate has not only an ominous name, but an unsavory reputation. I knew little about it except from the usual highly-embellished reports, and the description given by one writer, who likened its zigzag current to a streak of lightning. From Earl Houston I not only tried to find out something about Hell Gate but other alleged bad places in the Columbia below where I met him, but although Earl is a cool-headed and competent white-water man he is of the conservative type, and his consistent advice to me was to always go ashore and investigate before deciding what to do with a piece of bad water.

Whiterock

It was on the morning of October 1 when I reached Hell Gate, put ashore on the left, in the usual eddy, climbed the steep sides of a rough bench, and made an examination of its full length of about a half-mile. It had none of the repelling features of the Little Dalles, and to say I was agreeably surprised is to put it mildly. It is a contracted gorge with perpendicular walls of considerable height, and at the entrance is a large, protruding rock dividing a swift current agitated, below the rock, into fair-sized breakers which dissolve into a quiet eddy within the enclosing walls. At the head of the gorge there are two channels, formed by the rock just mentioned; then a single channel; then three channels—two great, upstanding rocks causing the separation. The middle channel of the three is straightaway, but terminates in vicious, foaming cascades. The right-hand channel turns abruptly to the right, is narrow, and even rougher than the middle one. The left-hand channel leaves the eddy almost at right angles with a swift, choppy current, devoid of breakers, and in a hundred yards impinges directly against the face of a low, vertical cliff which deflects it sharply to the right, makes a "hairpin" turn, and in a quarter-mile unites with the currents of the other two channels. There is still another channel, dry when I saw it, which is at the extreme left, at the beginning of the gorge, and unites with the upper leg of the hairpin channel—it must carry water when the River is high.

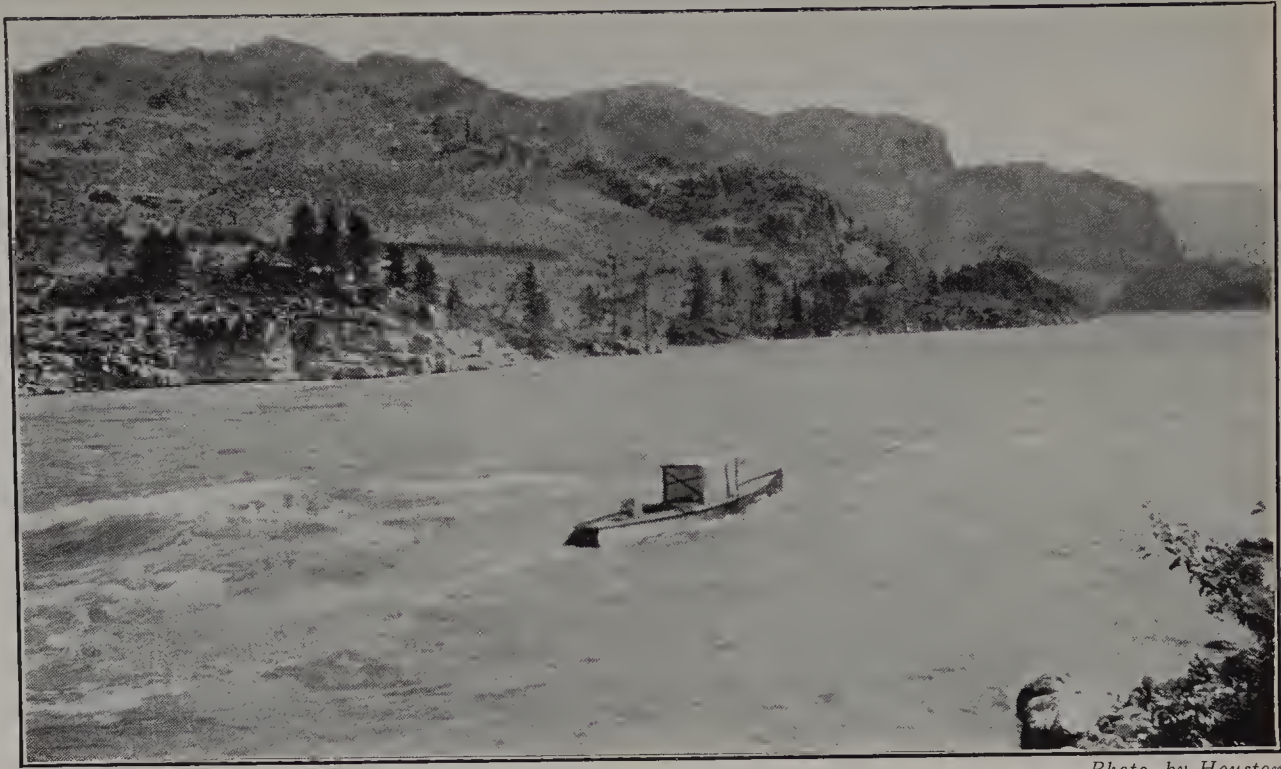
The appearance of the gorge was in no way alarming to me. The left-hand channel at the entrance was not navigable, my route was by way of the right-hand channel, and the only element of real danger was the gateway rock and the trailing breakers below it. I would be less than human not to be somewhat influenced by Hell Gate's evil name and reputation, and while my examination convinced me the place was safe, I confess to a slight feeling of uneasiness, to the extent that to prepare to swim in case of an upset, I removed my boots and outer clothing, and rowed through Hell Gate in underwear only. However, no sooner had I pushed the COLUMBIA from the shore and grasped the oars than all uneasiness fled, and mind and body was alert and active.

I know no better how to describe the mental state of a boatman when running whitewater than to repeat the words of the Reverend Samuel Parker, who ran the Cascades in 1836:

> "The sensations excited in descending the Cascades are of that peculiar character which are best understood by experience. The sensation of fear is no sooner awakened than it subsides before the power and magnificence of the rolling surges, the circling vortices, and the roaring breakers. Let those whose energies, either of body or mind, need arousing, try the navigation of the Columbia in high water and their powers will be invigorated for almost any future enterprise."

Having left the landing place in the eddy I pulled directly across, above the entrance, to the right-hand shore, and entering the gateway easily evaded the obstructing rock and its trailing plume of white-water, leaving them on the left, and sliding into the eddy below. I had shot through the gateway stern first but the swirl of the eddy was too strong to make headway backing water through it and I was compelled to turn and row bow forward to make downstream progress. The eddy was harmless and the head of the left-hand channel, which is the only runnable one, was soon reached. Here, the position of the boat was again reversed, and stern first I shot down the swift current directly toward the perpendicular cliff, not to dash against it, for that was not the intention. When a hundred feet away I turned to the left, and ran diagonally, and quickly, across to the lower leg of the hairpin, reaching it bow first, and then again reversing the boat dashed down that leg, but pulled to the left out of the influence of the current before reaching the agitated, dangerous junction of the three channels. As the hairpin channel is only a clear-running chute of swift water, and as dashing against the cliff, as well as the breakers at the gateway, had been avoided, no waves had come aboard the COLUMBIA. In fact, except for an occasional dash of spray, which fell on the canvas at the stern and immediately ran off on the outside, no water was shipped in any of the rapids after leaving Grand Rapids.

The above description of the method of negotiating Hell Gate may be interesting only to rivermen, and not to those who want something thrilling. But to a person standing on the cañon walls and watching the performance it might partake of the spectacular; and no doubt the changes of position and evolutions gone through, accentuated by obstructing rocks and foaming, crested currents, would have



—*Photo. by Houston*

Earl Houston's Motor Boat in Rapids Below Hell Gate made an interesting moving picture. But to the man at the oars the only thoughts are of the necessity of a cool head and hand, and the exertion of a little muscle—the making of no misplays, either mental or physical.

Below Hell Gate there are thirty miles of unobstructed river, and by noon of October 2, I reached Barry, a little hamlet on the left side and about a half-mile distant from the shore, and landed alongside of Ike Emerson's raft. Ike was up to his thighs in the water, breaking up the raft, and having the logs hauled up on the bench by a team of horses. I stayed at Barry long enough to mail some letters and get a lunch; and before leaving handed Emerson the Sunset Magazine containing Freeman's Columbia River story. He had indulged in some levity about Ike, who did not seem to be impressed with the tale, for, as the book was handed back to me, he remarked, "Yes, I made it as hard as I could for Freeman so he would have something to write about."

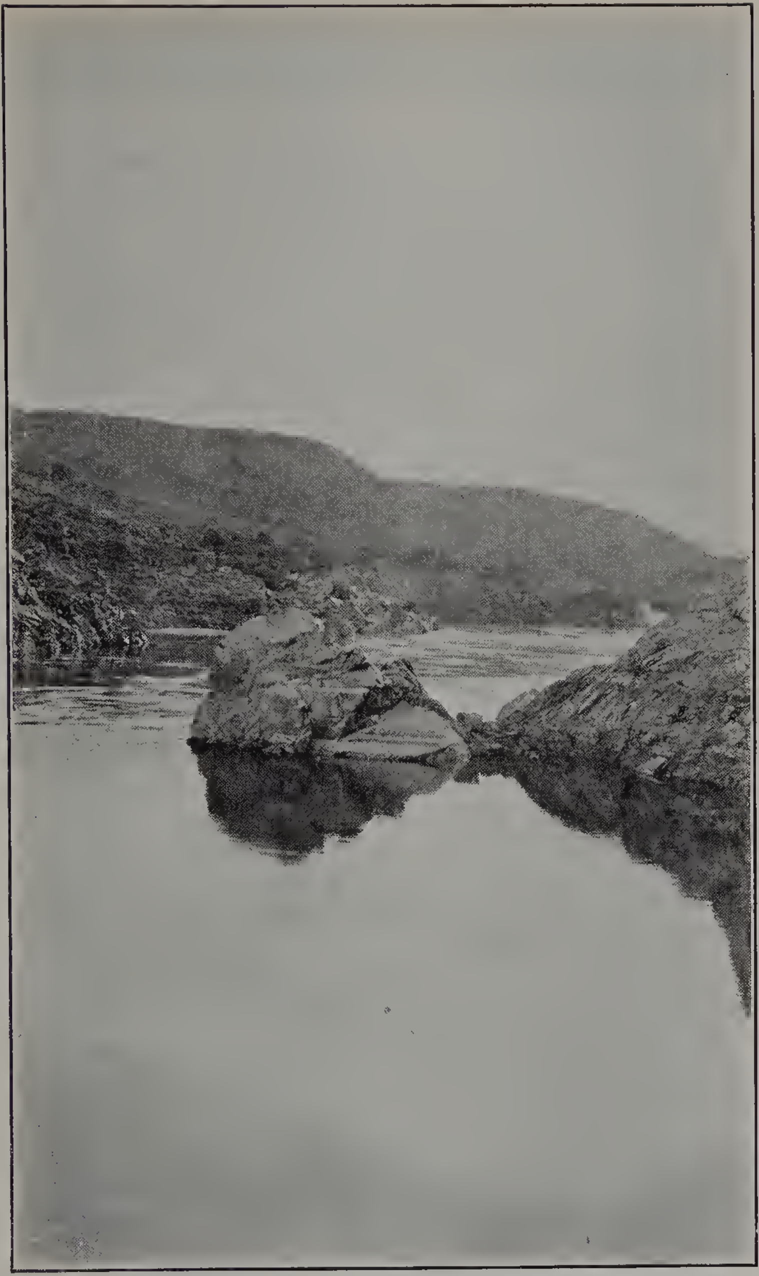
The next place in the River at which I expected to find trouble was at Box Cañon, where Houston's only advice was to land and investigate. Thinking Ike Emerson would tell me something more definite, and telling him I had run Hell Gate without trouble, I asked if it was safe to go through Box Cañon. Ike is of a different type from Earl, and in his blunt fashion said, "When you see it, you'll run it." And he was right—I did.

A short distance below Barry as I was running a rather rough but not dangerous rapid, known as Monaghan, or Brickley, I noticed two horsemen who had stopped at the foot of the rapid and were watching me. As I was in some doubt in regard to the correct name I rowed to the shore and asked the older horseman what the place was called. His answer set me straight, but he supplemented it by saying, "I could not be hired to run that rough water the way you do." I assured him that, compared with many other rapids I had gone safely through on my way down the River, they were not alarming. Two miles and a half farther brought me to Equilibrium, another fairly stiff rapid, which was gone through the same as Monaghan. By nightfall the Nespelem River was reached and I went into camp on the Indian Reserve in a clump of willows below an abandoned warehouse on the bench above. Here the River makes a sharp turn to the right and then to the left around a large gravel bar possibly twelve feet high, but which must be submerged during high water. There was a blind channel to the left of the bar with its lower end closed.

On the morning of October 3, I reached Mahkin Rapids and the head of Nespelem Cañon, an eroded gorge twenty-four miles long, with walls of no great height. The Mahkin are considered among the great rapids of the Columbia, but I ran them with nothing more than a little rough going; and then through Parsons and three small, unnamed rapids, and reached the head of Long Rapids, and there made camp on the left-hand shore. The timber had been gradually getting scarcer with the descent of the River and I spread my bed among the rocks under the shelter of a lone, stunted pine tree.

Long Rapids have an exceedingly swift current and a length of about a mile, terminating at the head of Box Cañon in an eddy. As the channel is free of rocks, there are no dashing breakers to be feared, only the fairly smooth, swiftly gliding current. In the morning, to be sure, there would be a place to land before entering Box Cañon, and knowing that the descent of Long Rapids would be like shooting a toboggan, I walked down the shore to where the eddy could be "sized up," selected a safe landing place, and returning, launched the COLUMBIA without hesitation, and in a flash was at the foot of the current and safely secured to the left-hand shore.

Box Cañon is another of those places on the Columbia River, that either justly or unjustly has an evil reputation. I studied it carefully, and when the River is low there is nothing to deter anyone from navigating it. It is a gorge, something like Hell Gate but straight. At its head there is a large, protruding rock in location and other features almost identical with the one at the Hell Gate entrance. Below this rock, and its breakers, the whirlpools have considerable power but not enough to form maelstroms capable of sucking a boat down in their vortices. There is no erratic current to contend with, and no whitewater except at the entrance rock; and the avoidance of this rock is the only problem. There was nothing to disquiet me about the situation, and, as like Hell Gate at the entrance, the left-hand channel was not navigable, I pulled across the eddy to the right-hand shore, easily passed the rock and was soon in the whirlpools. As I expected, these



—*Photo. by Forde*

BOX CAÑON, LOOKING UPSTREAM

were not dangerous, and only required strong rowing to get through them. Box Cañon is short, and it was not long before I was out of its confines.

The combination of Long Rapids and Box Cañon is what is called by Lieutenant Symonds in his report, which I have already quoted, "Kalichen Falls and Whirlpool Rapids." Both the Lieutenant and myself navigated this part of the Columbia when the River was low and it must have presented substantially the same appearance to us both. But try as I may I can not square conditions at the place with Symonds' description of them. From his narrative one gets the impression that Long Rapids has dangerous rocks in the channel—which is not the case. The eddy he mentions must be the one where I landed and went ashore to reconnoitre, and the huge rock he passed must be the gateway rock I mention and which I avoided by going to the right of it. There are no such rocks and current as he describes in the gorge itself.

I have tried to vision how Symonds made his exciting run through Box Cañon. The only way I can conceive it is this: Without waiting to investigate, his crew dashed wildly into the swift current of Long Rapids, and instead of controlling the speed of the batteau they augmented it with the oars until they were flying possibly at the rate of twenty miles or so an hour. The menacing rocks that alarmed Symonds must have been along the shores of Long Rapids, not in the channel. Dashing into the eddy under full headway, without checking their speed, they turned sharply to the right, passed the gateway rock

—*Photo. by Forde*

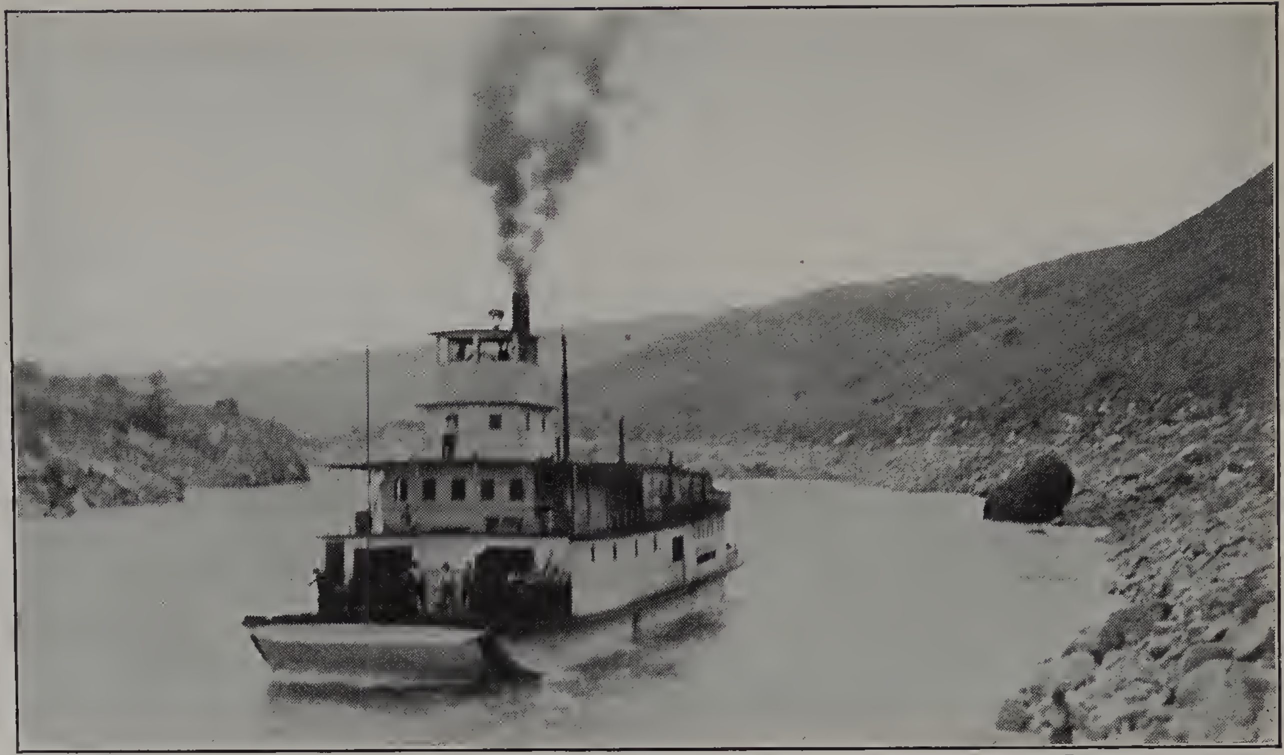
Foster Creek Rapids

and sung a pæan of thanksgiving. Although Symonds calls Box Cañon "Whirlpool Rapids," nothing is said about the whirlpools within the gorge and only the comparatively innocent eddy is mentioned. There are no falls, unless the steep descent of Long Rapids can be called such.

I have no doubt that both Hell Gate and Box Cañon are dangerous for small watercraft when the Columbia is at flood stage, but at low water they are much easier and safer to "tackle" than most of the great rapids, especially those in British Columbia.

Below Box Cañon are four small rapids, easily run; the next is Foster Creek, one of the major rapids of the Columbia. They are about three-fourths of a mile long, with large breakers, but I ran them easily by avoiding the roughest water. All the way from the head of Nespelem Cañon the River is contracted, rarely over a few hundred feet in width, and hemmed in by steep, but broken, walls 200 feet, and less, in height. At Foster Creek this condition ceases, and except for the invariable benches, there is a more expanded valley, the River gradually widens and before the mouth of the Okanogan River is reached, has a width of a half mile.

Two miles below Foster Creek the town of Bridgeport is located on the left side of the Columbia, across from the Colville Indian Reservation. There is a steamboat landing there and a long, inclined road leading to the top of the bench. I stopped long enough to visit the place—an attractive country town, humming with activity at the time, the streets being filled with many teams.



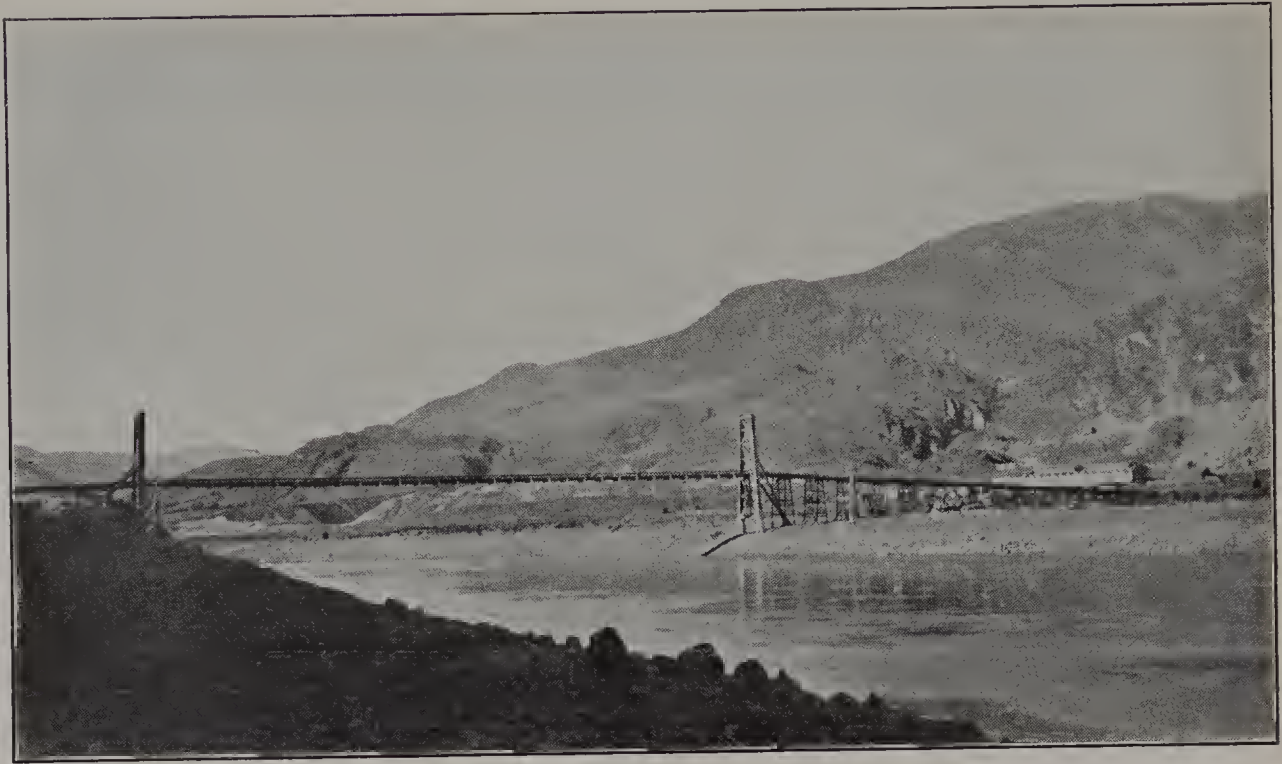
—*Photo. by Ray Brott*

Steamer Bridgeport in Nespelen Cañon

A short distance below Bridgeport I passed the little square-nosed steamboat *Bridgeport* plowing her way upstream against the current. She is the only steamboat on the Columbia River between the Arrow Lakes and The Dalles City. Captain Fred McDermott is her master; and as there are no railroads along this section of the River he is able to do a fair transportation business between Bridgeport and Pateros.

I passed through two small rapids after leaving Bridgeport and in ten miles reached the mouth of the Okanogan River, and a little later Brewster, the first town on the right-hand side of the Columbia after leaving Trail, B. C. The Okanogan River enters the Columbia two miles above Brewster in a valley about two miles wide at its mouth. Its source is in Okanogan Lake, a body of water seventy miles long, generally three miles wide, but tapering to a mile and a half at the upper end. It is in British Columbia, over the Gold Range almost west of Lower Arrow Lake, and has an elevation above sea level of 1,132 feet. The Okanogan River leaves its southern end after passing through several small lakes, crosses the Border and, flowing almost due south for about a hundred miles, mingles with the Columbia after descending 340 feet. The Okanogan Valley is a noted agricultural section and under irrigation produces fine crops, especially fruits of various kinds.

I camped on the beach at Brewster. It is a small town just outside of the Colville Indian Reservation. It is on the Great Northern Railway, which reaches



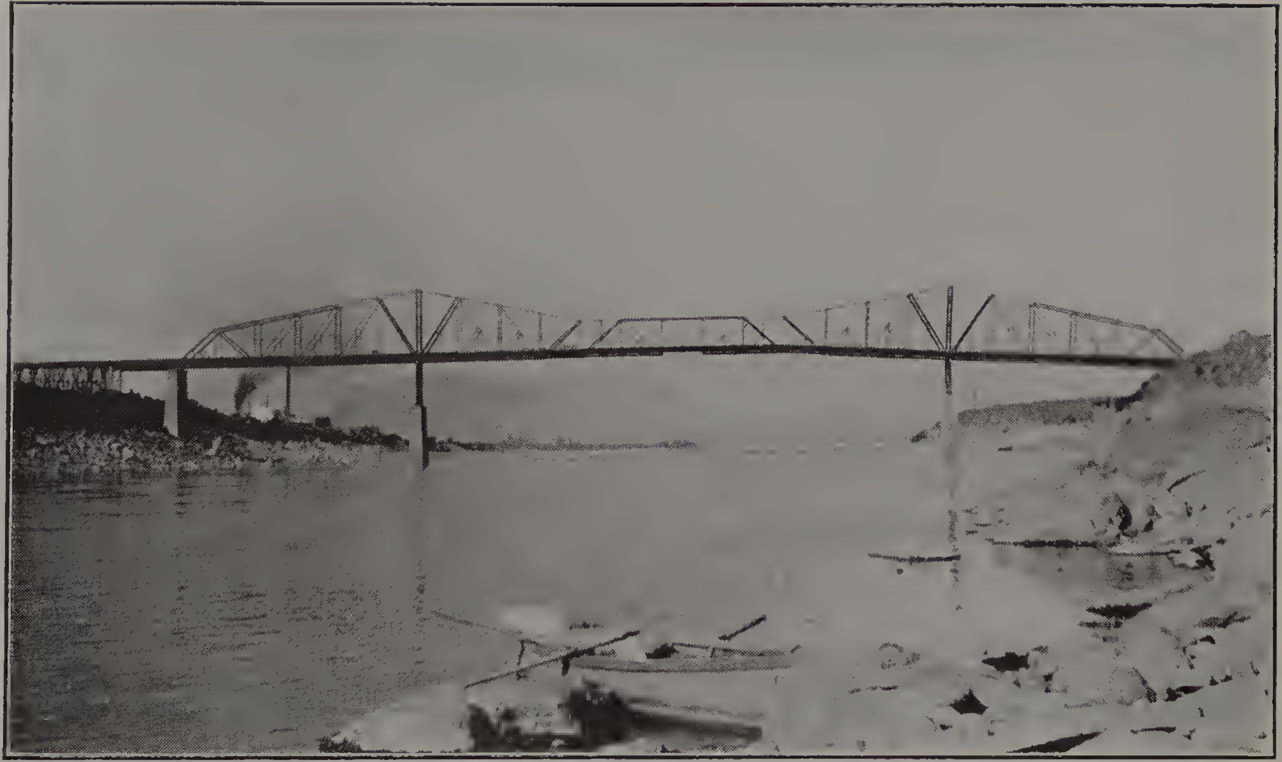
Suspension Bridge at Chelan

it from Wenatchee and continues northward, up the Okanogan River, and across the Border into British Columbia. Opposite to Brewster the Columbia is over a mile wide but is filled with several large, low sandbars. At this point, the River meets an obstruction to the westward course it has been following—the Buckhorn Mountains—and begins its southward trend around the Great Bend. As a result of the change of direction a ninety-degree elbow has been formed, and in this elbow the joint action of the Columbia and Okanogan has deposited the sandbars.

Leaving Brewster the morning of October 5, in a couple of hours Pateros, a small railroad town at the mouth of Methow River, was reached. Just below the mouth of that river are the small Methow Rapids, and after running these, although the Columbia contracts to a width of a quarter-mile in places, there is no turbulent water, and before nightfall I encamped in an apple orchard at a pumping plant on the left side of the River, two miles above the bridge at Chelan.

The town of Chelan is not on the Columbia River, but is four miles away, to the west where the Chelan River leaves Chelan Lake. Chelan Lake is a narrow, crooked body of water about fifty miles long, having a southeasterly trend. It is mountain-locked, and said to have, in places, vertical walls rising 6,000 feet above the water. A depth of 1,700 feet has been found, and as the surface elevation is 1,079, that would mean that the bottom is 621 feet below sea level. The lake is drained through a deep, eroded gorge, with perpendicular walls, by the Chelan River, which falls 380 feet in the distance it flows to the Columbia River.

Leaving the apple orchard on October 6, a short run brought me to the suspension bridge crossing the River to Chelan. A large water flume clings to the mountain side just above the bridge, on the east, and crosses on it to the west side. I stopped long enough to photograph the bridge and the town of Chelan, in the distance, and then continuing on my way, passed the town of Entiat and through six small rapids and by noon, October 7, arrived at Wenatchee.



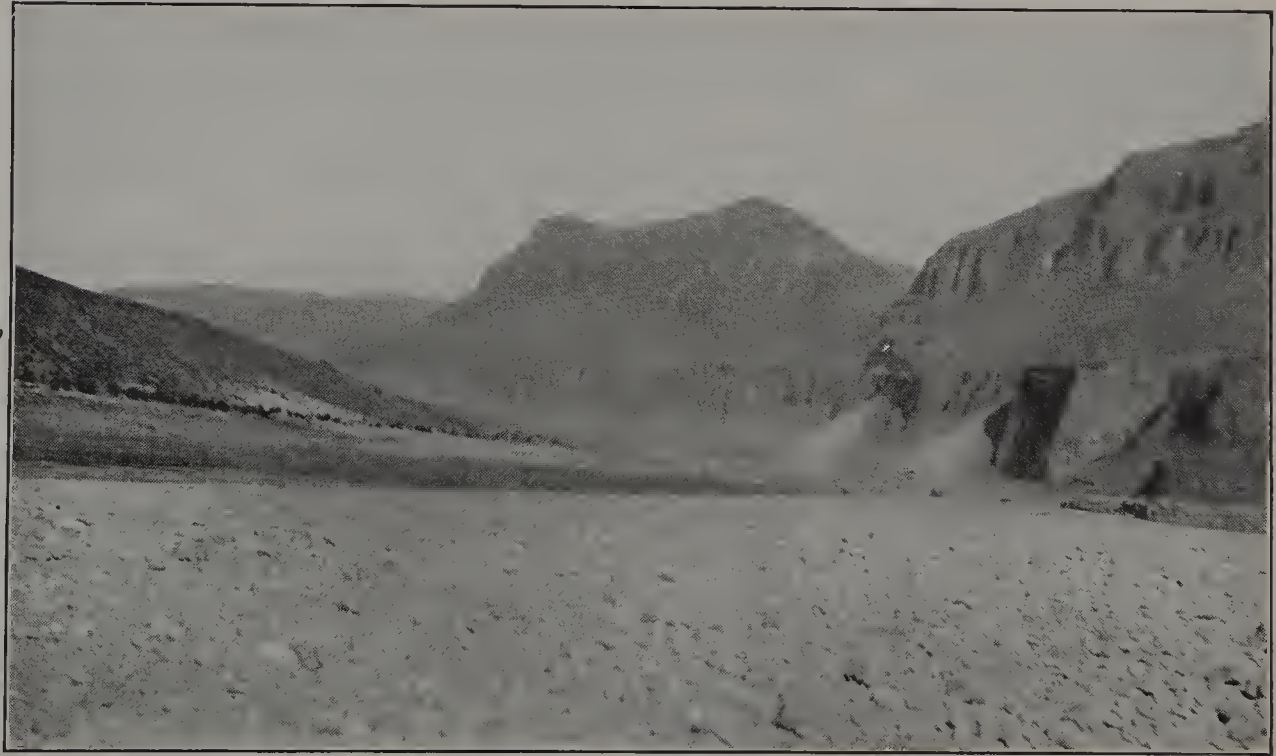
Cantilever Bridge at Wenatchee, Looking Upstream

CHAPTER XXI

FROM WENATCHEE TO PASCO

As Wenatchee was the largest town so far reached on my trip, although the business section was well back from the beach, I decided to look it over. I found it a clean, well-built, modern city, with a population of 7,000 people. It is on the main line of the Great Northern Railway, on a level plain, on the west side of the Columbia, and almost in the geographical center of the State of Washington. A cantilever highway bridge spans the River just below the town. Three miles above is the mouth of Wenatchee River, which drains a fertile valley to the northwest. Wenatchee is in the heart of a rich agricultural district; various crops are raised, but apples are the main reliance, and it is claimed that the small area of 30,000 acres tributary to Wenatchee constitutes the most important single apple-growing district in the world, and is the foundation for its proud claim of being "The World's Apple Capital."

I spent about two hours at Wenatchee and then passed under the bridge and in five miles came to a rough stretch of water known as Rocky Island Rapids. The breakers were high and numerous, but avoiding the worst of them, I shot through with nothing more serious happening than the picking up of a little spray which ran off the canvas at the stern and did not reach my person.

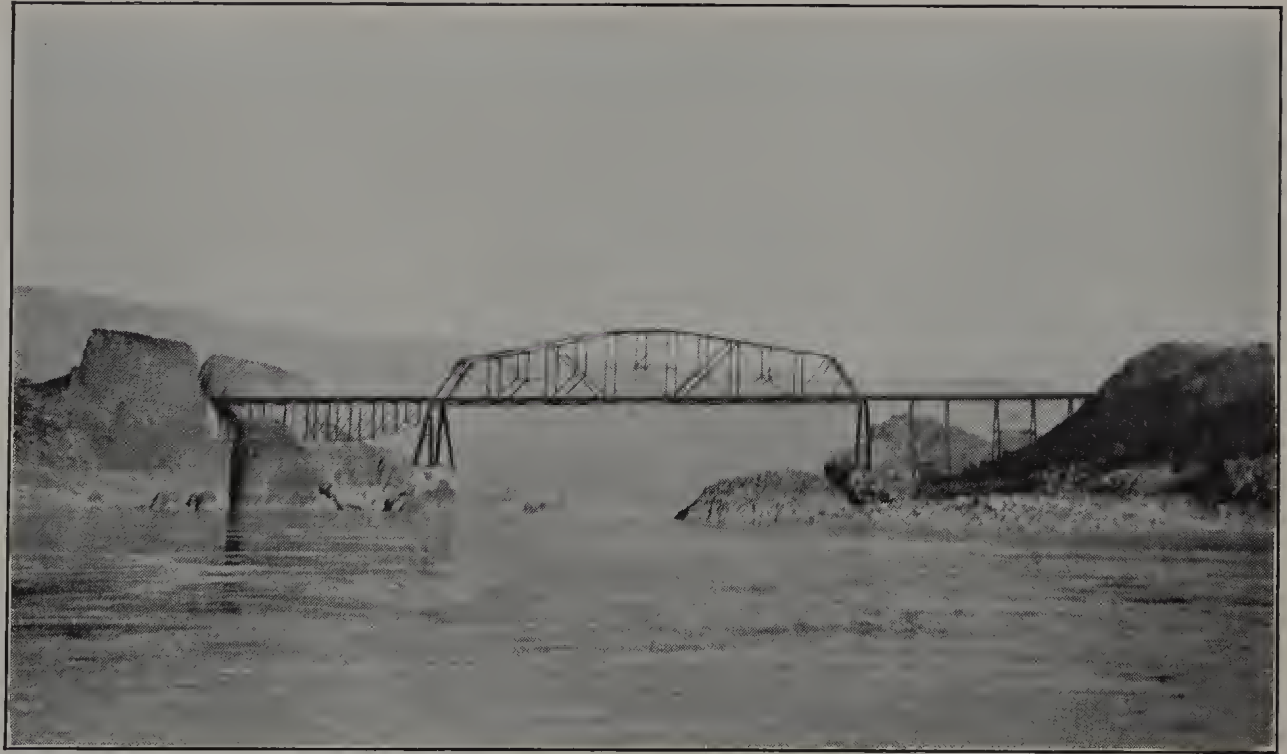


Beginning of Basalt Bluffs Below Wenatchee

Three and a half miles farther along I reached the crossing of the main line of the Great Northern Railway. At a very contracted place in the River, natural rock abutments were found on both shores and a three-span bridge, 874 feet long now unites the rocky walls. The middle span has a length of 416 feet and the whole volume of the Columbia, a quarter mile wide above, passes through the middle span. I approached the bridge with the feeling that whirlpools were bound to be formed in the narrow neck, and perhaps there was a problem ahead of me to be solved. In this I was mistaken—there was hardly a ripple to disturb the tranquillity of the surface of the River. It was hard for me to realize that the mighty Columbia, after flowing 800 miles, and being augmented by the flow from other almost equally great streams could pass through the gap at the Great Northern crossing without at least the semblance of a whirlpool.

After crossing the Columbia the Great Northern Railway encounters the steep slope of a high plateau and follows, southward, along the left-hand shore of the River about fifteen miles before it finds a way to turn eastward. Two miles below the railway crossing I reached Rock Island station, and found a place to camp just under the high railway embankment above the station.

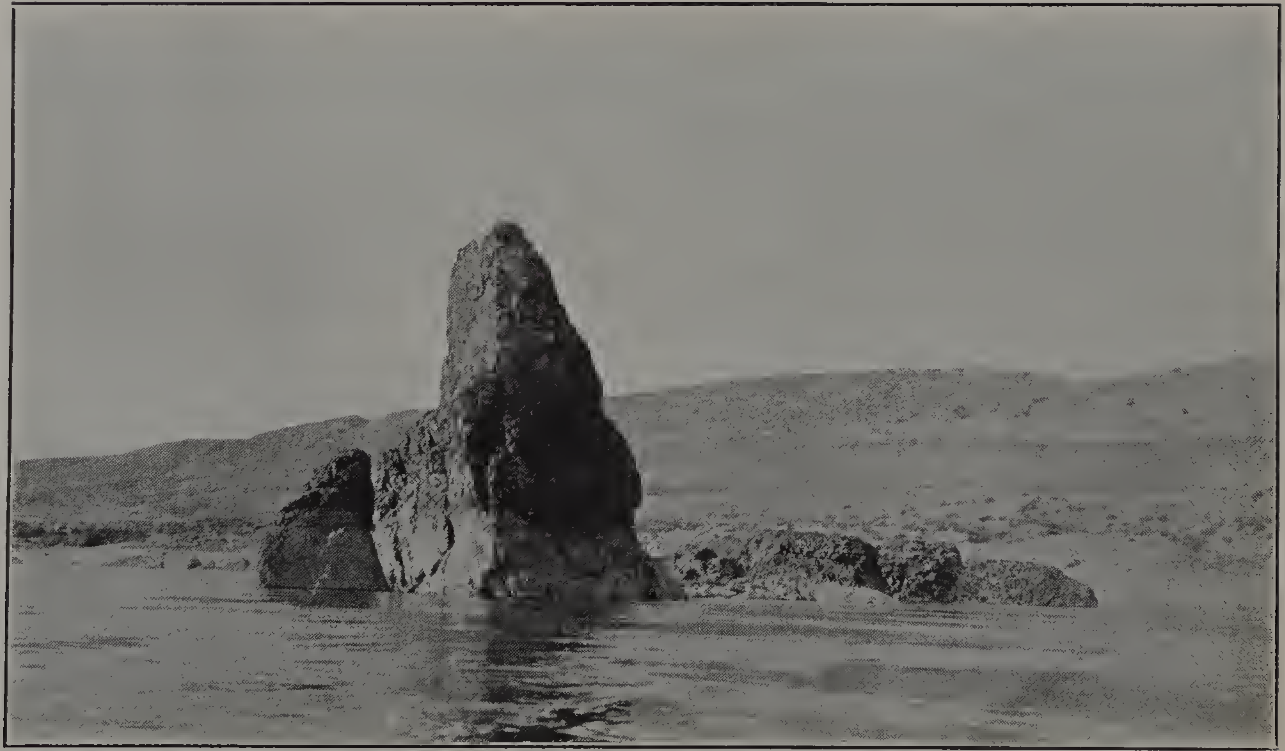
Left Rock Island station October 8, and in a mile and a quarter reached Rock Island Rapids, a dangerous section of the River demanding inspection before running. I landed well above their head on the right-hand shore, where there is a low bench



Great Northern Bridge at Malaga

which merges into another 150 feet high at the head of the rapids. Climbing this higher bench an unobstructed view of the whole situation was before me. Rock Island Rapids are about three-fourths of a mile long. There are two channels, divided by a great, bare mass of basalt a half mile long and fifty feet high. The right hand channel skirts the base of the high bench on which I stood; its upper end has only a swift current, but its lower end is filled with numerous protruding rocks and although the breakers were not as tempestuous as some I had come through, the protruding rocks cause such a crooked channel that weaving a way among them was doubtful. Lining along the base of the high bench was possible, but my high elevation enabled me to see over the rock island to the left-hand channel, and as it looked much the safer of the two I decided to go across river and examine it.

Along the left shore there is a narrow bench of no great height, which the Great Northern Railway follows, and above that the mountains rise abruptly 2,000 feet. Like the right-hand channel, the left-hand one, at its head, is tranquil except for slow-moving harmless eddies; but the entrance would not be attractive to the timid, as it is guarded, on the left, by a considerable point on which are several isolated, jagged, upstanding rocks fifty feet in height. It is at its lower end, where it is divided into three branches, that the left-hand channel presents a problem to the navigator. The one on the left terminates in a dangerous cascade; the middle one looks runnable, if it can be followed, but as part of its current

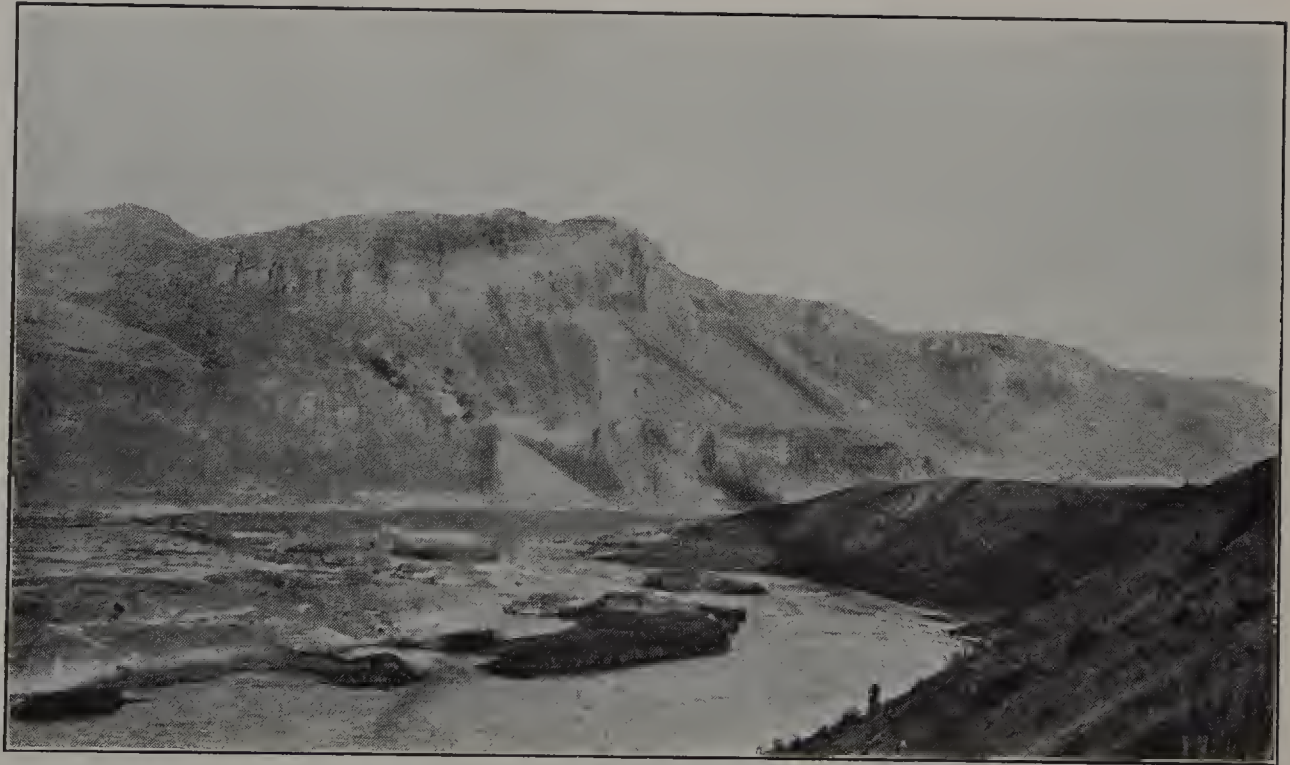


—*Photo. by Forde*

HEAD OF EAST CHANNEL, ROCK ISLAND RAPIDS draws strongly towards the cascade, there is no certainty that an oarsman can overcome its influence and keep to the right of the foaming mass. The branch on the right is the safest of the three. There was nothing in it more alarming than a large rock at its head, well spaced from the island shore, and some medium-sized breakers below in a straight channel. Going back to the head of the left-hand channel I decided to run it all, without lining or portaging. Rounding the point at the entrance and hugging close to the island, the obstructing rock was soon reached and passed on the right, the breakers were entered and proving no way serious were run through with little effort.

Two miles below Rock Island Rapids was a small riffle, and three miles farther Cabinet Rapids, where I was due to receive a surprise.

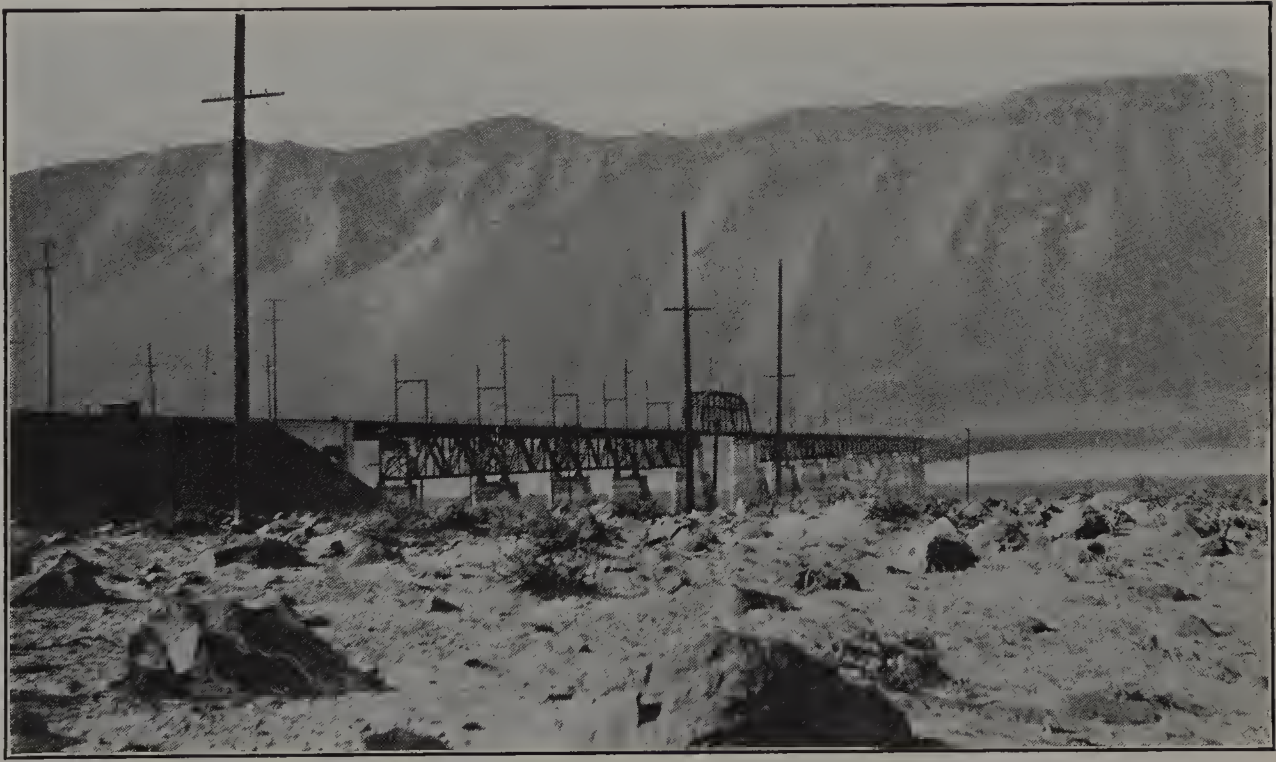
Everyone I had talked with about Cabinet Rapids assured me that I had nothing to fear there, so I did not take the trouble to examine them before running other than to stand up in my boat and "size them up" as the current carried me towards them. The River contracts there and a swift current with a narrow, agitated crest starts at the left-hand shore and runs diagonally across to a perpendicular cliff with a concave, lateral face which rises directly out of the water on the right, and striking it with great force is sharply deflected to the left along the curved face and shooting past the point in which it terminates, expends itself in the body of the River. Just below the head of the crested current was a submerged rock with the water foaming over it and a



—*Photo. by Forde*

Looking Down West Channel, Rock Island Rapids large "souse-hole" below—something like the one I so narrowly missed at Grand Rapids, but smaller. Below this rock, and souse-hole, was an apparently safe eddy skirting the current on the left. To the right of the current, and above where it reached the face of the cliff was a considerable whirlpool.

In the little time in which I had to formulate a plan, what I decided to do was this: to back into the crested current, below the rock, pull quickly to the left into the eddy, reverse the boat, and row towards the left-hand shore where there was little commotion. But the plan did not work! No sooner had I got through the current and into the eddy than the COLUMBIA began to travel rapidly upstream towards the souse-hole. This would not do and my instant decision was to get back into the current, trusting that I could pull out of it before reaching the cliff. It must be understood that I was shooting Cabinet Rapids in my customary fashion with the boat's stern down stream. As the current was now above me, all I had to do was to row bow forward into it. As has been stated the current was narrow and that caused what happened; for the effort that I put into the oars, to escape from the eddy, carried me clear across the current into the whirlpool on the right. Instantly the COLUMBIA turned halfway around. I had long since learned that as soon as a boat starts to turn in a whirlpool the best thing to do is not to try and check her but aid in the revolution, and at the same time endeavor to force her a little down stream and away from the swirl that turns her. The COLUMBIA repeated the half-way



Chicago, Milwaukee & St. Paul Bridge at Beverly turn three times before I could get her out of the whirlpool and once more in the current, which she reached bow forward, and immediately flashed past the face of the cliff and the projecting point, but so close that I had to draw the left-hand oar inboard to prevent it being splintered against the shore.

After passing the point I was in safe water, and nothing serious had happened. I had struck nothing, taken aboard no water, and, as the rapids are short, had merely spent a lively three minutes. When I reached Pasco, a few days later, I learned that two men who had tried to run Cabinet Rapids in a rowboat had been dashed against the cliff and one of them was drowned. Captain W. P. Gray, a retired riverman, told me that at one time, in attempting to take a steamer through the place she had smashed into the cliff and lost eight feet of her bow. I did not go far after leaving Cabinet Rapids but found a place to camp in the sand among the sage brush on the right-hand shore.

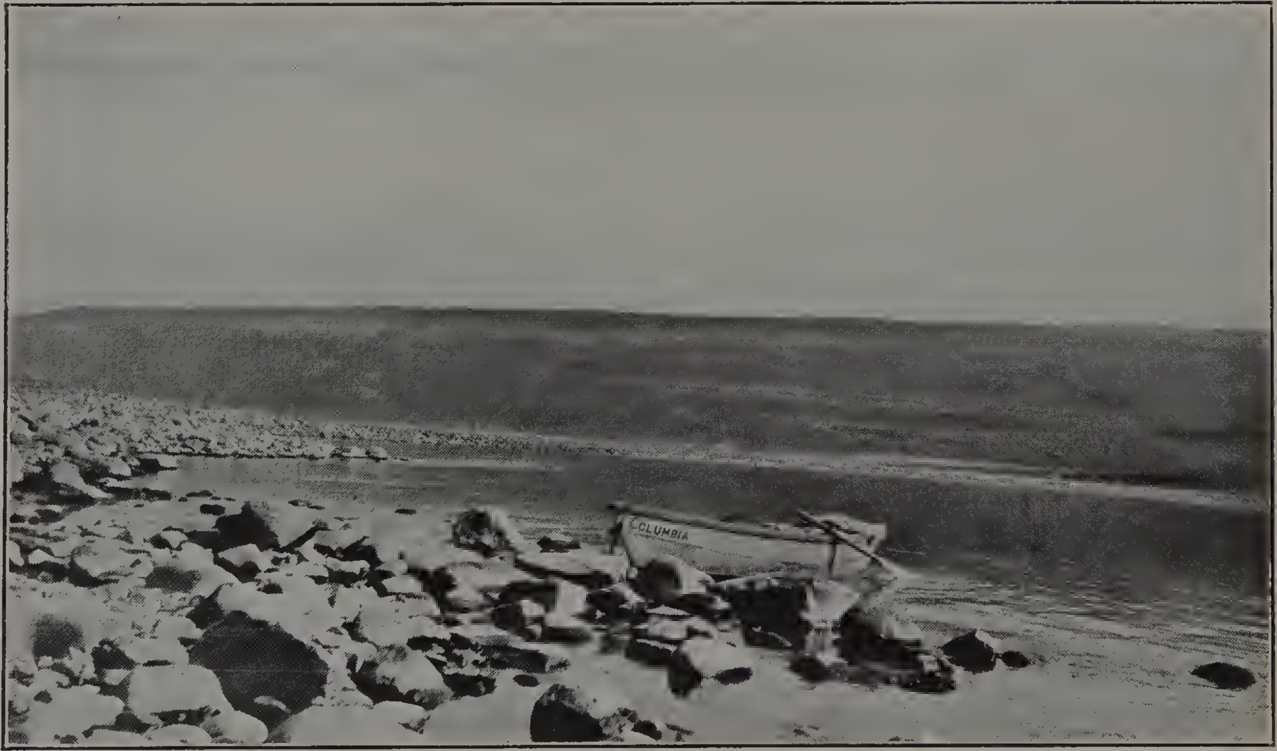
On the following day, except for two small rapids, Gaulquil and Island, easily navigated, there was no rough water and I reached a camp ground just above Beverly where the Chicago, Milwaukee and St. Paul Railway crosses the Columbia after coming from the East down Crab Creek. This crossing-place is in marked contrast to the short and favorable one of the Great Northern. Here the River is over a quarter-mile wide, its shores are flat and thickly covered with basalt boulders. I counted seventeen spans in the C., M. & St. P. bridge, and am not sure that I got them all. The main street

Gauquil Rapids

of Beverly is a half-mile east of the River. It is a small, dreary place, with streets and sidewalks covered with wind-driven sand. On the front porch of the most pretentious residence the housewife was doing the week's washing.

A mile and a half below Beverly are the Saddle Mountains, 1,800 feet high, which the Columbia cuts at right angles. The River is here but 800 feet wide, but while it laves the steep slopes on the left, on the right they are a mile away. Two miles suffices to get through this intervening ridge, and two miles more brought me to the head of Priest Rapids.

Priest Rapids are, next to Kinbasket Rapids, the longest combination of rough water on the Columbia River. There are seven separate rapids in a distance of eleven miles; but between the third and fourth there are five miles of untroubled water. These rapids are unlike any other on the Columbia, for while the rest are formed by either a contraction of the channel or a division of it into two or more by rock islands, and the channels are obstructed by good-sized masses of rock, either submerged or exposed, the River at the head of Priest Rapids immediately widens. Where above it has a width of 1,000 feet, it quickly doubles, then becomes 3,000 feet wide, only to narrow again to a quarter-mile at the foot of the last rapid. The expansion causes shallow water almost everywhere and the bottom is frequently seen as one glides along the surface and gives the feeling that his boat may at any time run aground. The rough water is caused by low reefs and points of small, basalt boulders. At the



Bay at Head of Priest Rapids, Looking West head of the fourth rapid, a part of the River is diverted along the right shore for two miles to a small power station.

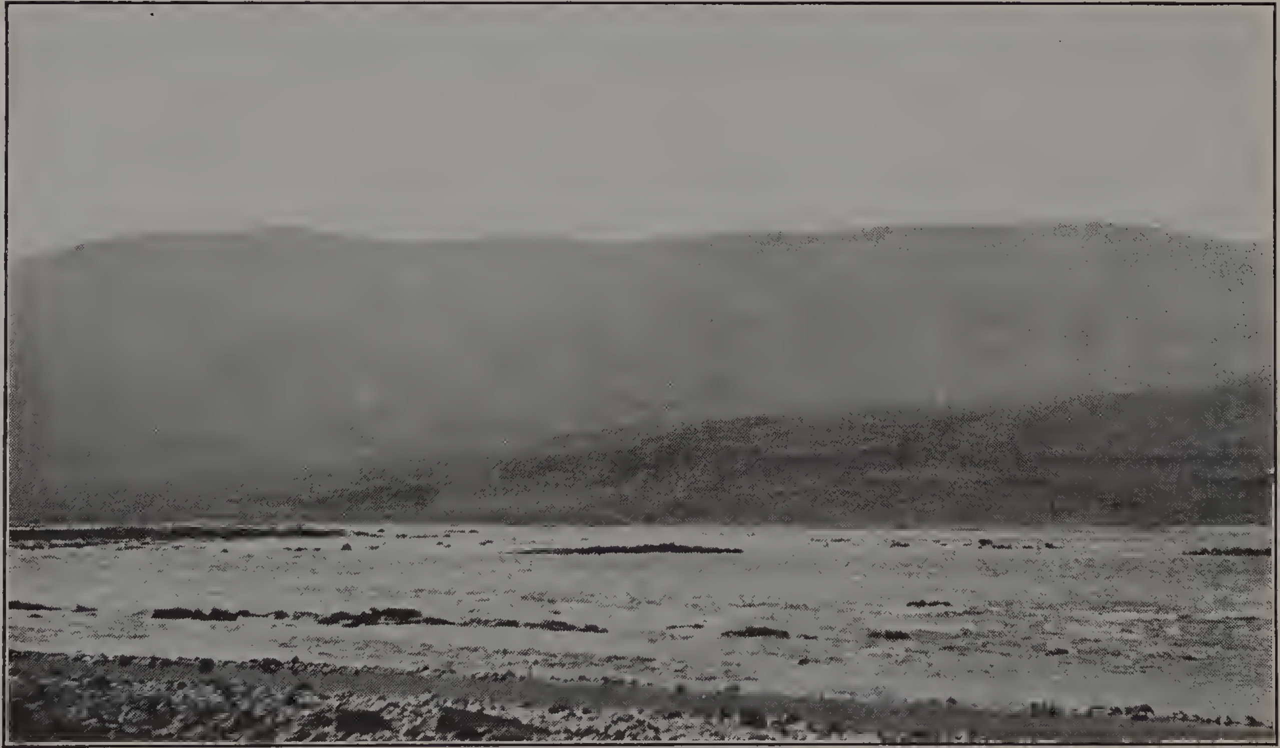
The first six sections of Priest Rapids are sufficiently formidable in appearance to make the prudent navigator land at the head of each, examine its peculiarities, and select the route he is to follow. As there are no high banks on which to stand and get a general view, this necessitates walking down and back almost the full length of each section, and takes some time, making slow progress. It was on October 10, that I reached the head of Priest Rapids. The first section was easy. The second section was rather rough, requiring careful consideration of the way to be followed and also the way the boat was to be handled. I experienced no difficulty either in that or the milder third section, and was then in the five miles where there is no whitewater. Half way down this I came to an old sheep camp on the right shore, just off the mouth of Sourdough Cañon, and not far from the track of the Hanford branch of the Chicago, Milwaukee & St. Paul Railway, and where there was a corral and a stack of coarse prairie hay that made a good bed. As there was no other camp ground for miles below, at the foot of the rapids, and I could not reach it before nightfall, I made an early halt and rigged up a comfortable resting place.

October 11 I reached and examined the 4th, 5th and 6th sections of Priest Rapids, the latter the only one having dangerous breakers. It is about as rough a rapid as I care to tackle, but after de-

The Level Plain of Old Lake Lewis

ciding that it could be run with safety, if done rightly, I slipped through its greatest waves with nothing more serious happening than the picking up of a little spray on the canvas at the stern of the boat. The seventh section was nothing more than a light riffle.

Fourteen miles below the foot of Priest Rapids I reached a negligible rapid called Coyote. Just above it on the right shore is a large pumping plant that raises water into the Hanford Ditch which irrigates twenty thousand acres of fertile land. About twenty miles downriver is the town of Hanford, the terminus of a branch from the main line of the Chicago, Milwaukee & St. Paul Railway to the north. Shortly after passing Priest Rapids, the Columbia River becomes a half mile wide, then increases to three-fourths of a mile, and flows, untroubled, for sixty-five miles to Pasco. I had nothing more strenuous to do than to keep my boat in the swiftest part of the current and in a short time came to the White Bluffs, just below Wahluke on the left, where the River, which has been flowing to the northeast, turns sharply to the southeast. These bluffs are about ten miles long and between 400 and 500 feet high, are of lacustrine formation, of sandy marl. The River flows at the base of their steep slopes. Opposite their lower end, on the right-hand shore, begins the most intensively cultivated and charming section along the whole length of the Columbia River. For sixteen miles, to the town of Kennewick, is a level plain, nowhere more than fifty feet above the Columbia, covered with a continuity



Section 6 of Priest Rapids

of farms of ripening grain, fruit orchards with the trees just beginning to turn yellow, and green patches of alfalfa. Back from the River, on the higher spots, are the farmhouses and barns surrounded by groves of sheltering trees. Seven miles above Kennewick I passed the mouth of Yakima River, which enters the Columbia from the northwest; and opposite Kennewick reached Pasco on the evening of October 13, and found a place to camp in a little frame shed in a small grove not far above the city pumping station.

The Power Station at Priest Rapids

CHAPTER XXII

PASCO AND VICINITY

The city of Pasco is located on the left, here the northeast side of the Columbia River, about three miles above the mouth of Snake River where the Lewis and Clark expedition first reached the Columbia, and where David Thompson posted the notice claiming possession of the territory for the Northwest Company. At this place the Snake is now crossed by the bridge of the Northern Pacific Railroad, at the south end of which is Burbank station, and the north end Ainsworth Junction.

Pasco is on the main lines of the Northern Pacific, Oregon-Washington Railroad and Navigation Company, and Spokane, Portland and Seattle Railways. A joint railway bridge crosses the Columbia River to Kennewick. A power ferry now operates between the two towns, but will soon be replaced by a highway bridge which is now under construction. Pasco is a division point on the Northern Pacific, and that company employs 950 men in its shops alone, and these, together with other employees, make a monthly pay-roll approximating $200,000. The ground on which the town is built is not more than fifty feet above the Columbia and rises gradually to the northeast. The tributary country is agricultural, raising all the products of the temperate zone, and although apples are not specialized as much as they are farther upriver, they make a good

Looking Up Yakima Valley

part of the orchard product. The soil is fertile, but requires irrigation, as the rainfall is small.

The people of Pasco are promoting a very ambitious irrigation project which involves tapping the Pend d'Oreille River near the town of Newport, 165 miles to the northeast of Pasco, and diverting it on to the arid lands of the ancient lake bed north, east, and south of the latter place. It is claimed that the waters of the Pend d'Oreille thus utilized will bring into productiveness 1,750,000 acres of what is now unproductive land, and add $240,000,000 a year to the wealth of the nation. The total cost will be $254,750,350, and will require the aid of the National Government.

The population of Pasco is about 4,500. Kennewick, its across-river neighbor, is about half as large. In my opinion, Pasco will eventually become the leading city on the Columbia River. It has the location, soil, climate, transportation facilities, and immense tributary country to make it so. All it needs is the life-giving influence of water on the lacustrine soil east of the Columbia River; and its development and prosperity will largely depend upon the fulfillment of the great irrigation project which will turn the now barren waste of the old lake bed into a veritable garden.

Kennewick is at the lower end of the Yakima Valley, the mouth of the Yakima River being but a short distance to the north. The Yakima River heads on the eastern slope of the Cascade Range, not more than forty miles from the City of Seattle on Puget Sound, and flows southeasterly through one

Railroad Bridge at Pasco, Looking Upstream of the most noted farming sections of the State of Washington, with 300,000 acres of land irrigated under Governmental control. A variety of crops are raised, but as is the case with most of the fertile valleys tributary to the Columbia River, apples lead the rest, and the Yakima Valley contends with the Wenatchee district as to the quality of its fruit. About halfway up the valley is the city of Yakima, having a population of 19,000—the largest interior city in Washington.

At the present time there are no steamboats to be seen at Pasco or Kennewick, and their waterfronts are inactive. Coming upriver through the Celilo Canal steamboats formerly ascended to the foot of Priest Rapids—the limit of navigation—but since the closing of the Canal to such traffic by the order of the United States Government upon the declaration of war in 1917, transportation by water now ends at The Dalles City, 133 miles below Pasco.

NOTE: Since the above was written about Pasco and Kennewick, information has been received that the proposed traffic bridge between the two places has been completed at a cost of $480,000, and was dedicated and opened to travel on October 21, 1922. The structure is called the Benton-Franklin Inter-County Bridge, and is 3,300 feet long, consisting of five steel truss spans 1,410 feet long, of which the three central ones are cantilevers spanning 906 feet. There are steel trestle approaches at each end with a total length of 1,890 feet. The new bridge displaces the power ferry so long used for crossing the Columbia, and is located just above the railroad bridge of which an illustration is here given.

CHAPTER XXIII

FROM THE BOUNDARY TO PASCO: *Topography, Farms, Fruit, Indian Reservation, Irrigation, Forests and Arid Lands, Railway Bridges, Power Projects, Geology, Placer Mines*

In describing the Columbia River south from the International Boundary to Pasco much has been omitted. To describe everything in detail, as seen as one travels the stream, would require too much space. A general description of the outstanding features will not only be shorter but will give the reader a clearer idea of the actual character and present appearance of the River and the country it flows through. The various rapids, of which there are fifty-five (and one waterfall) have been sufficiently dwelt upon; and many of these are so alike in their character that they become monotonous rather than interesting—only a few of them standing out in relief—and of these only Grand Rapids can rank with those of the Big Bend, in British Columbia. This is proved by the ease with which I ran them.

After leaving the confining mountains of the Selkirk and Gold Ranges, and the higher and steeper slopes becoming more or less level plateaus, rarely over 2,000 feet above the River's surface, the Columbia pursues an erratic course south and westward until it reaches the obstructing eastern spurs of the Cascade Range, just below the mouth of the Okanogan River. Except for about fifteen miles of the distance traveled from the Boundary, the River is a confined, contracted stream, rarely over a few hundred feet in width, and for twenty-four miles runs through a shallow cañon. Near the town of Bridgeport—nine miles above the mouth of the Okanogan River—the Columbia begins to expand and from there on there is a gradual but varying increase in width, with the one pronounced contraction at the crossing of the Great Northern Railway. About midway between the Sanspoil and Nespelem Rivers—not far below Hell Gate—on the left, is the head of the Grand Coulée, a former channel that permitted the Columbia to flow into what is now a great, arid basin of an ancient lake, to which has been given the name of Lake Lewis.

After reaching the base of the Cascade Range, below the Okanogan River, the Columbia is turned to a southerly course and follows, on the right, the different spurs of the Range under the names of Buckhorn, Chelan, Entiat, and Wenatchee, until the narrow ridge of Saddle Mountains is reached and cleft in twain. Below that the Yakima Range, forming the western shore line of Lake Lewis, is skirted; and then comes the low, level Yakima plains and there is no more elevated land west of the River until the Horse Heaven Hills appear below Pasco.

Almost opposite to the mouth of the Okanogan River the Badger Mountains reach the Columbia, on the left, and are followed to just below Rock

Island Rapids, where they become plateaus 500 to 600 feet high. These mountains are lower than those west of the River rising about 1,500 feet above the stream at their northern and southern end, but dwindling, midway, into plateaus about 500 feet high. Below Rock Island Rapids the slopes from the Frenchman Hills terminate as plateaus of the same height as the others, but the Columbia only skirts their bases in places, and there is much low land from a half to a mile wide, bordering the River. At Crab Creek, a mile and a half below Beverly are the Saddle Mountains, already referred to, and immediately below them the plain of ancient Lake Lewis is reached and followed to Pasco, with a low shore line, except for the ramparts of the White Bluffs. Midway of Priest Rapids, looking eastward, the eye sees nothing but a low, sandy, arid plain fading away in the distance. The Bitter Root Mountains are the eastern limit of the plain and are too far away to be visible through the atmosphere along the earth's surface. This is the section that it is proposed to make fruitful by irrigation with the waters of the Pend d'Oreille River.

A particularly marked feature along the Columbia River in the United States as far south as Pasco (barring a portion of Lake Lewis) are the numerous level benches, which have been frequently mentioned, and which, except on the "Indian Side" of the River, are practically all under cultivation. What impresses the observer most are the great apple orchards on every piece of favorable land, and make the section an "apple empire." The finest apples in the world are raised in the State of Washington, and the bench lands of the Columbia are favorable places for farming, because of the unlimited supply of water for irrigation that can be obtained from the River. The choicest varieties of apples are the Delicious and Spitzenberg—great, solid, luscious fruit, four inches in diameter. Many smaller and hardier kinds are also raised. It must not be inferred from this that apples are the only things the country will produce, for as I made my way through the district I was not only deluged with apples, but with peaches, pears, grapes, watermelons, and a variety of choice vegetables. However, apples must be the most dependable and profitable crop, for there is no question but that it is the main one.

As above stated, there are no orchards to be seen on the Indian reserves. I skirted along the boundary of the Colville Reservation about 150 miles and saw no attempt to raise fruit. In fact, the report sent me by Superintendent Upchurch shows that the Indians devote their attention mainly to raising grain, hay, and livestock. I did not see more than a dozen Indians on the Reserve, and very few of their houses were in sight from the River. I visited three of their homes. The Indians have adopted the white man's mode of living, but they are not as clean and orderly as the whites, and their homes are not attractive.

In connection with the white men's farms is the almost invariable pumping plant, operated by gasoline engines raising water directly out of the River not only for irrigation but for domestic purposes, and which make the farmer independent of the rainfall, and his crop a certainty. At the Boundary the average annual rainfall is 30 inches, and there is a continual decrease until at the mouth of Snake River there is but 9 inches. This small rainfall not only makes irrigation necessary but has its effect upon the forest growth, and while there is considerable timber on the hillsides at the Canadian line, by the time Box Cañon is reached all native growth has ceased, except such kinds as are found on moist ground along the water courses. First, the hemlock cedar, spruce and fir disappear, and nothing remains but the white and yellow pine. As the rainfall lessens, the trees get sparser and more stunted, underbrush is no longer seen, open, park-like places become numerous, and finally even the pines succumb to the lack of moisture, and sage brush and other arid land elfin growths are all that can maintain an existence. However, in spite of the light rainfall, wheat is successfully grown on the plateaus, and I saw many fields of ripening grain hundreds of feet above the valleys.

What adds more life than anything else to the appearance of the Columbia River are the frequent ferries constantly plying from shore to shore. Every few miles a steel cable is seen stretched across, above the water over high towers erected on the banks, and trailing from which, with its guy wires, is the ferry-boat slowly but steadily being pushed by the current towards the desired shore.

All these things, contributed by men within recent years, make an entirely different Columbia River than the one seen by the early voyagers and fur traders; and still another feature is the great steel bridges, which have already been mentioned, but which I will again enumerate: The Great Northern bridges at Northport and Marcus, the suspension bridge at Chelan, the cantilever bridge at Wenatchee, the Great Northern bridge at Malaga, the Chicago, Milwaukee & St. Paul bridge at Beverly, and the joint railway bridge at Pasco.

Although there are five railway bridges across the Columbia, very little of the rich farming sections along its shores is served directly by the railways. The Great Northern serves from the Boundary to Marcus; from Brewster by way of Wenatchee to Columbia River station; and from the main line, northward, a branch reaches Peach at the head of the Great Bend. The Chicago, Milwaukee & St. Paul merely crosses at Beverly, with a branch southward to Hanford. The Northern Pacific, and Oregon Railway and Navigation companies serve Pasco and Kennewick.

At present there are no dams on the Columbia River, but several good sites are under consideration. The first of these is at the Little Dalles, the second at Kettle Falls. The next site is six miles above Barry, and when I passed the place a party of engineers were engaged in sinking holes to test the underlying formation for a foundation. So far, granite had been reached in each of the test holes. The height of the dam is to be 200 feet; and a diversion into the Grand Coulée, to the south, is contemplated. The last site is at the foot of Priest Rapids, where the largest dam in the United States is under consideration. It is to be 90 feet high, and will impound sufficient water to develop 350,000 horse-power and irrigate 200,000 acres of land. This last project seems to have advanced to almost the point of construction; and if constructed as planned, will obliterate Priest Rapids and so change the character of the River as to render impossible a duplication of my feat of navigation, and I will probably be the last, as well as the first, to make a complete, continuous descent of the Columbia River.

South from the Boundary to the Okanogan River the geological formations are almost entirely sedimentary—limestone, clay, and shale—with an occasional intrusion of granite, as at Hell Gate and Box Cañon. Limestone predominates above the mouth of the Colville River, and is pronounced in the gorges of the Little Dalles and Kettle Falls. The test holes near Barry show that granite underlies the sedimentary rocks below the turn of the Great Bend at Hawk Creek.

Above Bridgeport, a prominent feature of the landscape is the multitude of indiscriminately scattered basalt boulders, not only in the River channel but on its shores and even on the high benches. These boulders were evidently dropped by glaciers which apparently flowed from some source to the northeast, probably in the Rocky Mountains. Below Bridgeport, the scattered boulders disappear only to reappear below Wenatchee, larger, and more numerous than ever, sometimes as great rock islands in place and not glacier borne. Below the mouth of the Okanogan River basalt becomes the surface formation and forms the River's walls except where it flows through the lake bed below the Saddle Mountains. It is claimed that the great, sentinel peaks of the Cascade Range—Mount Tacoma-Ranier, Mount Adams, Mount St. Helens, Mount Hood, and Mount Jefferson—were at one time active volcanoes and poured forth the greatest lava flow of earth, covering 200,000 square miles of area, including the Columbia River Valley from the Okanogan River to the Pacific Ocean, covering the original surface with a mantle 2,000 feet, or more, in thickness. Erosion has modified this mantle to a great extent and produced an undying soil of great richness.

In the limestone above the Colville River, lead, silver, copper and zinc are found and mined; and in the gravel bars of the Columbia, gold was discovered in 1855. These bars were worked, above Hawk Creek, as placer diggings, first by white men and later by Chinamen, but were eventually exhausted and abandoned, and now not a vestige remains of the work that was done.

CHAPTER XXIV

FROM PASCO TO THE DALLES CITY

I was detained at Pasco by a severe wind and rain storm, the first rain that had fallen since leaving Castlegar, 26 days before. The storm at Hunters was a hurricane of wind only. Leaving Pasco at 11 o'clock, October 15, in a short distance I passed under the joint railway bridge and rowing down a tranquil current in three miles passed the mouth of Snake River, where I could see the steel bridge of the Northern Pacific Railroad. A mile farther brought me to the bridge of the Oregon-Washington Railway & Navigation Company across the Columbia. The going continued good and I was almost abreast of the mouth of the Walla Walla River when rain began to fall and I cast about for a place to go into camp. On the right-hand side was a neglected orchard, on a low bench, and, putting ashore, I found the place favorable and set up the tent under an old apple tree and not far from the track of the Spokane, Portland and Seattle Railway.

I had noticed an empty farmhouse just across the railway track and after establishing camp, I investigated it. The house had several rooms, was wide open and unfurnished, but in one room I found the floor completely covered with fresh hay, on which, lying in one corner, was a bundle of blankets. As the ground was rather uneven and rough in the orchard I appropriated a good-sized armful of the hay, carried it to my tent and spread it under my bedding. While I was preparing supper, the occupant of the house made me a visit.

He introduced himself as Lee Fulkerson, a trapper of predatory animals, in the employ of the Washington State government. I learned from him that the State of Washington keeps 17 trappers constantly employed, under salary, to destroy wild animals that prey upon livestock. He claimed that in the last five years he had, personally, killed 765 coyotes, 97 bob-cats, and 2 bears. His home is at old Fort Wallula, almost directly across the River from the deserted farmhouse he was then occupying.

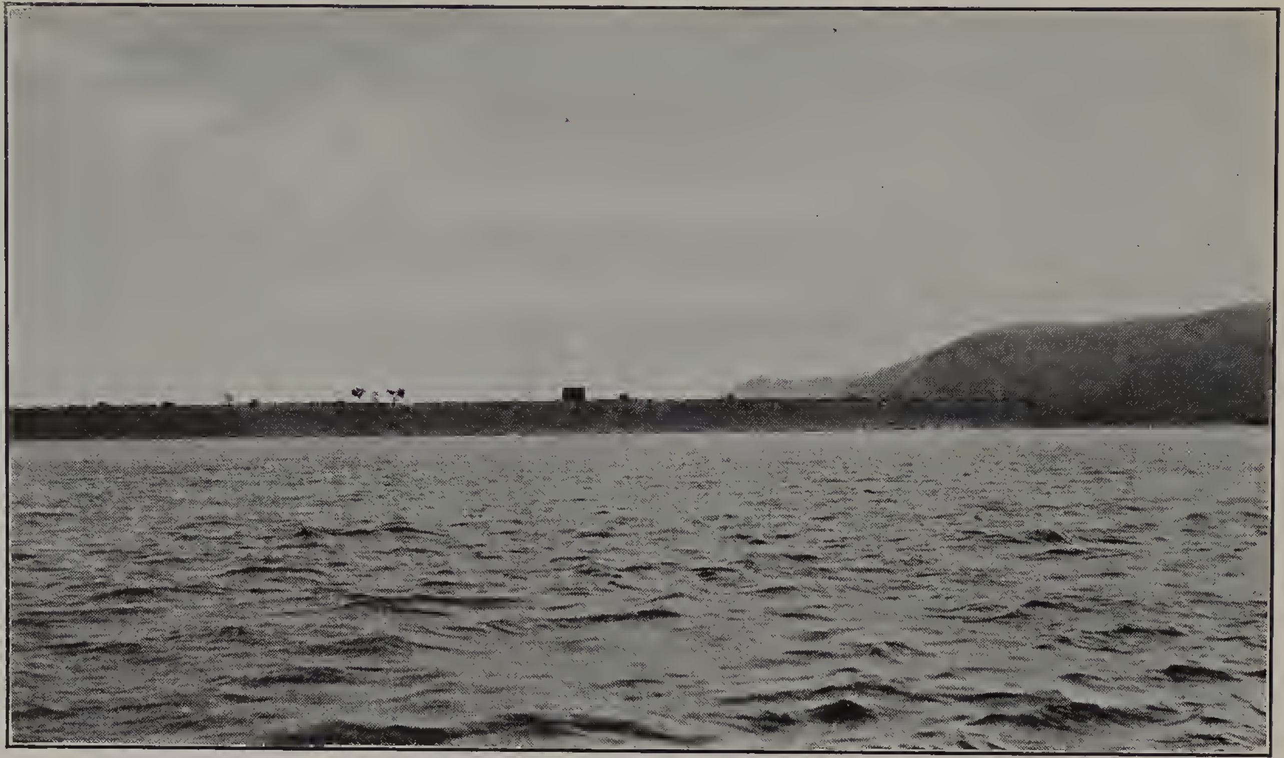
In connection with the information furnished by Mr. Fulkerson, the annual report of Mr. Glenn R. Bach, Inspector of Predatory Animals for the State of Washington, for the calendar year 1922 will no doubt be interesting. The State Government combines with the Federal Government and private agencies for the control of predatory animals, with conspicuous results for 1922. There was an average of 28 trappers, or hunters, employed for the year, working a total of 8,771 days, taking and destroying the following animals: bears 10, bob-cats 160, coyotes 2,794, cougars 6, wolf 1, miscellaneous 47; total 3,018. The expense entailed in the destruction of the above animals was $36,775; and the saving thereby to livestock raisers is estimated to be $156,700.

Fort Wallula was originally called Fort Nez Perce and was established on the Walla Walla

River, just above its junction with the Columbia, as a fur trading post by the Hudson Bay Company in 1820. When the Canadians abandoned their posts south of the Border the United States Government took possession, established a military encampment, and changed the name. During the pioneer times of the Northwest, Fort Wallula was a center of great activity, but now nothing remains but a solitary house and a flag-pole.

Leaving the old orchard on the morning of October 16 in a short distance I passed the Walla Walla River, fortified by an array of basalt blocks that litter the Columbia at its mouth. The Walla Walla River defines the termination of the ancient lake bed which I had been following for 100 miles; and also marks the southern end of the Great Bend around which I had come from Hawk Creek. From now on, the course of the Columbia is westward. Here the Umatilla Highlands intercept the River with their bare, basalt slopes rising up a thousand feet to the plateaus above and the challenge is met by forcing a way through for nine miles with a channel 3,000 feet wide. Immediately on entering the hills a noticeable butte is seen on the left shore. This is the Twin Sisters, crowned with two almost equal-sized turret-shaped summits. Four miles below the mouth of the Walla Walla River the State of Oregon is entered, and thereafter Washington will be on the right-hand side and Oregon on the left.

Below Pasco the Columbia River is paralleled by two railway lines. On the right is the Spokane, Portland and Seattle, known as the "North Bank



Old Fort Wallula

Road," which crosses the River at Vancouver to reach Portland. On the left is the Oregon, Washington Railway and Navigation Company, which goes directly into Portland. The trains on these two railways became familiar objects to me as they passed and repassed, and I received many signals from the train crews—whistle blasts from the engineers and "high signs" from the conductors and brakemen.

Below the Umatilla Highlands the valley opens out into broad plains considerably higher on the Washington than on the Oregon side. Much of the land is under cultivation, principally to grain, but the great orchards seen above are absent—those I saw were small. The section is one of minimum rainfall and semi-arid but the moisture is sufficient for grain. Irrigation is necessary for fruits and vegetables and as there are no pumping plants along the River, water must be obtained from the nearby hills or from wells. The raising of livestock is a feature of the section.

After leaving the Walla Walla River, rapids again become numerous in the Columbia, and after passing through a small one called Bull Run, towards evening I came to one I did not recognize from the descriptions that had been given me. The Umatilla Rapids should be next, and they were said to be rough and dangerous and were responsible for the loss of several lives—but these were not alarming compared even with Priest Rapids.

The rapids I had reached had somewhat rough breakers in the main channel, but along the Oregon shore there were few rocks, little current, and ample depth of water to float the COLUMBIA. I did not land to investigate, but hugging the left hand shore closely, made good progress for about a mile until it became evident that I was in a *cul-de-sac* with a low reef ahead and another on the right barring the way to the channel. Farther downstream progress was checked and the only alternative seemed to be to line back upstream a hundred yards or more to where there was an opening which would take me outside of all obstructions. However, it was too late in the day to go through the slow process of lining, and deferring the matter until morning I pitched my tent on the low bench at the place where I was halted.

Not liking the idea of lining upstream (something there had been no necessity of resorting to so far on the trip), the first thing I did in the morning, after breaking camp, was to go down to the obstructing reef below and "size up" the possibility of crossing it in some fashion. The reef was about 15 feet wide with shallow water having a gentle current flowing over it in one place. There no longer being a reason for carrying much in the way of provisions I was now traveling with a light boatload, and believing it would be a better plan to drag my boat over the reef, if necessary, rather than line upstream, I rowed down to the crossing place I had selected. The boat grounded in the shallow water, but when I stepped overboard to drag her I was pleased to find that, relieved of my weight, she would just float across the reef without even scratching her bottom. A few minutes' time were all that were necessary to solve the problem that looked somewhat serious the night before, and I was again in good going—but not for long, for I was in a second pocket.

This time the reef to be crossed projected about a foot out of the water, was about 12 feet wide and was cleft in twain by a narrow channel of deep water. The channel was about four feet wide, but had a sharp bend that caused the COLUMBIA to wedge in the passage. But that was nothing. Stepping out on the rocks, first on one side and then on the other, without further unloading, I alternately lifted and twisted the bow and the stern, and keeping part of the boat all the time in the water, in five minutes I was by this, the last obstruction, and was through the rapids. A little farther along I turned a bend to the left and came in sight of the town of Umatilla, Oregon, a railway junction at the mouth of Umatilla River. It was not until the town came in view that I realized that I had just come through the alleged dangerous Umatilla Rapids without having to run a single foot of rough water.

Stopping at Umatilla a short time, two miles below there Devils Bend Rapids were reached and passed, and towards evening I came to a deserted settlement about a third of the way down Blalock Island, a large island two miles wide and seven miles long. Here I found three large two-story houses, wide open and unfurnished, except that the upper house had, in one room, a bedstead with a spring mattress. It was a comfortable place, affording a good bed, and I made myself at home.

After leaving Blalock Island in the morning I ran Canoe Encampment Rapids, hugging the Oregon side, and had just reached their lower end when a man signaled from the Washington shore. Answering the signal I rowed across the River to see what was wanted. He was an employee of the North Bank Road who was "baching" and wanted to go across and down the River about a mile to Castle Rock station to get some needed groceries. In the conversation I had with him it developed that he had lived in British Columbia, and knew much about the difficulties I had had to contend with in navigating the Big Bend section of the Columbia River. Leaving my passenger at Castle Rock, nine miles of good going brought me to Heppner Junction, Oregon, a small place at the mouth of Willow Creek. Here the plain that had been a feature on the Oregon side of the River ends and becomes a plateau about 400 feet high. On the Washington side the land had been gradually increasing in elevation and had developed into broken, rounded hills many hundred feet higher than the plateaus on the Oregon side. Eleven miles below Heppner is the pretty little town of Arlington, Oregon, another railway junction, which I reached at sundown, and finding no place to set up a tent I made my bed among some willows on the beach.

Leaving Arlington on the morning of October 19, I had before me more rapids to contend with in a single day's run than on any other section of the Columbia River; and some of them were said to have dangerous features. Owyhee, Blalock, Four o'Clock and Rock Creek Rapids were navigated without delay or trouble, and then came Squally Hook, a somewhat different rapid.

About twelve months prior to my arrival at the place, Freeman had run Squally Hook, alone in a rowboat, without first taking the precaution to investigate them, and his story describes his experience and narrow escape from capsizing. The view ahead as I approached seemed to confirm his recorded impressions. On the Oregon side is the high cliff that gives the place its name. On the Washington side the shore is low and flat for a considerable distance towards the higher ground. Between the shores are low-lying, exposed reefs of basalt stretching all the way across except for narrow channels filled with tossing whitewater. The reefs seemed to form an almost perfect barrier, for I could see no channel offering even a fair chance of safety. It was a case of putting ashore and making an examination—I did not care to repeat Freeman's experience, perhaps with more disastrous results. This is Freeman's story:

> "The sheer two-thousand-foot cliff on the inside of the bend that gives its name to the rapid is well called Squally Hook. What had been a gentle ten-mile-an-hour breeze on the river above began resolving itself into a succession of fitful gusts of twenty or thirty, as I approached the rock-walled bend. Even a steady head wind makes steering awkward in going into a rapid, a gusty one is a distinct nuisance. To avoid the necessity of any sharp changes of course after I was once among the whitecaps, I resolved to use every care in heading into the rapid in exactly the right place. That was why, when I became aware that two girls from a

farmhouse on the bench above the right bank were motioning me imperiously in that direction, I swerved sharply from the course I had decided upon in an endeavor to locate the channel into which I was sure they were trying to tell me to head. Just what those confounded, half-breed Loreleis were *really* driving at I never did learn; at any rate they were certainly *not* trying to pilot me into a clear channel. The fact walloped me right between the eyes the instant I discovered that I had pulled beyond the entrance of a perfectly straight channel, and that there was a barely submerged barrier of rock blocking the river all the way to the right bank.

"That, of course, left me no alternative but to pull back for all that was in me for the 'intake,' but I didn't have room to make the channel. The current, running now like a mill-race, carried me onto the reef sixty feet to the right of the smooth, green sheet of the 'fairway.'

"If it had taken half an hour, instead of half a second, to shoot out across the shoaling shelf of that froth-hidden reef there might have been time for a good bit of worrying anent the outcome. As it was, there was just the sudden thrill of seeing the bottom of the river leaping up to hit the bottom of the boat, the instant of suspense as she touched and dragged at the bank, and then the dizzy nose dive of two or three feet into deeper water. It was done so quickly that a stroke checked by the rock of the reef was finished in the up-boil below the little cascade. With an inch or two less of water she might have hung at the brink and swung beam-on to the current which, of course, would have meant instant capsizement. The way it was, she made a straight, clean jump of it, and only buried her nose for the briefest part of a second when she struck. The rest was merely a matter of three hundred yards of rough running down a rock-clear channel."

According to his description, Freeman narrowly escaped disaster and his close call impelled him to blame the half-breed girls whom he has likened to the fabled enchantress of the Rhine, Lorelei, who with her siren songs wantonly led men on to destruction. The girls were misjudged, for they were honestly trying to divert Freeman from danger and into the safe channel that exists at Squally Hook, as my experience at the same rapids will prove.

From the lay of things at Squally Hook it was apparent to me that the Washington shore was the one on which to land and reconnoitre, and I accordingly put ashore about a thousand feet above the first reef on that side. Following down the beach, afoot, I found the solution to the safe and easy passage of the rapids. Just above the first reef, and unseen from upstream, was a deep, narrow channel, about thirty feet wide, turning abruptly to the right and then to the left, absolutely clear of rocks, and avoiding all the rough section of the main channel. This was the safety chute the alleged Lorelei were so "imperiously" beckoning the traveler into.

Having found the safe channel, the logical thing for me then to do was to follow it, and going back to my boat, I dropped her carefully down, close to shore, and reaching the entrance to the chute turned quickly into it and in a few minutes the swift current had carried me through with nothing more serious to contend with than the diminishing waves at the trailing end of the rapids.

Indian Rapids, three miles below Squally Hook, and said to have dangerous features, were still to be navigated. I approached them with a degree of caution, but finding nothing to either alarm or delay me, I selected a favorable chute between the reefs and, gliding through some moderate breakers, in a few minutes the sixth, and last, rapids of the day's run were left behind.

Just before sundown John Day River, a considerable stream entering the Columbia from the Oregon side at the head of John Day Rapids, was reached. As the right-hand channel was plainly the one to be followed through the rapids, I put ashore at their head and made camp in the willows on the Washington shore.

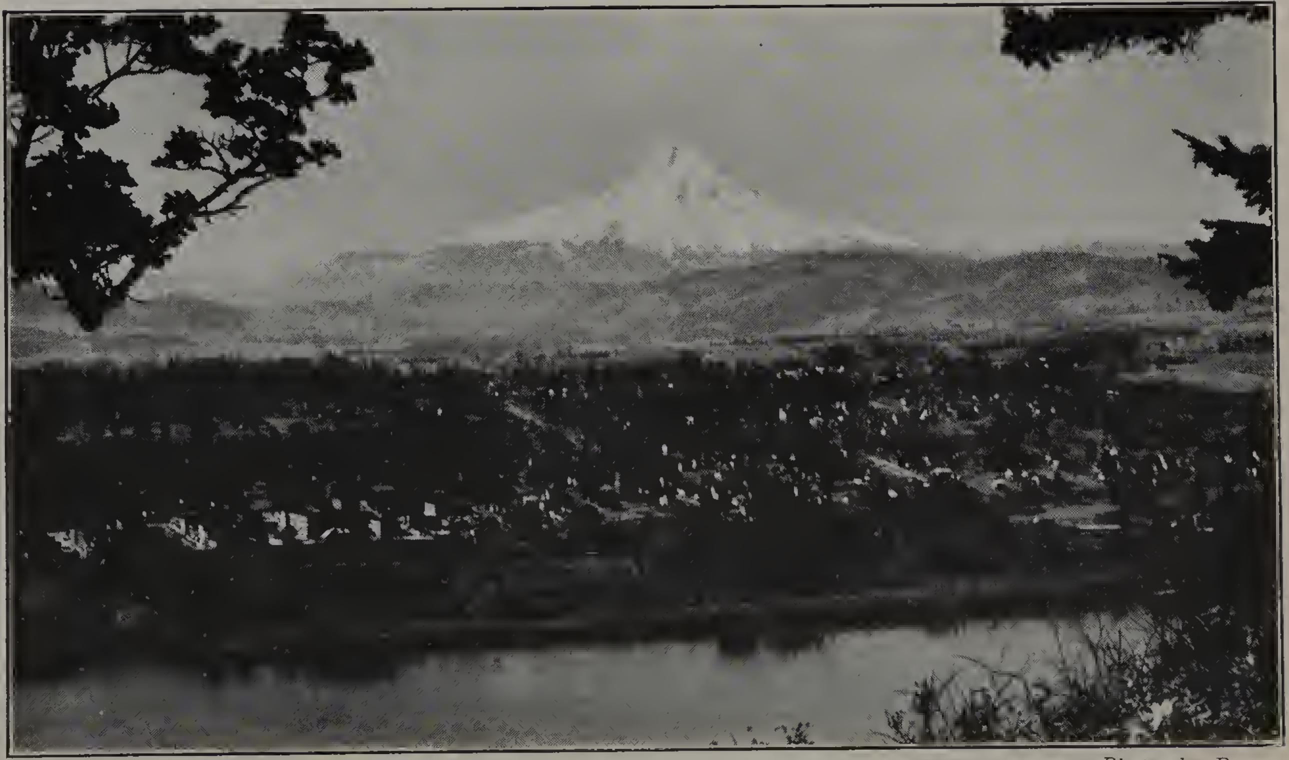
The John Day Rapids are in three sections and with an early start in the morning I entered and ran the first. The second section was almost reached when one of the sudden storms for which the Columbia River is famous came racing upriver. It was not a squall, but a gale of wind like the one that drove me ashore at Hunters, and making headway against it was impossible. My progress had brought me against the rocky Oregon shore where there was no place to land and find shelter from the fury of the wind, and it was not until I had rowed back upstream a quarter-mile that I found protection on a sandbar behind a low, projecting cliff. The storm showing no signs of abatement, I set up the tent and placed all my things within it to shield them from the drifting sand which lost no time in covering everything with a mantle of grit. It was not a comfortable camping place that I had been forced into, but I managed to make my stay there endurable after finding a watermelon patch at a ranch on John Day River just

Head of John Day Rapids

above the highway bridge. The farmer's wife and daughter were in the field when I reached it and from them I obtained a couple of fine, ripe melons cut fresh from the vine, and the last I was to get for the season.

The storm expended itself during the night and, the morning of October 21 being calm, I easily ran the second and third sections of John Day Rapids, and turning a bend to the left, a most beautiful sight burst unexpectedly into view. It was Mount Hood, an almost perfect cone covered with a fresh mantle of snow and resting in a bed of evergreen timber. The peak was directly down the middle of the River, whose silvery surface, shining in the morning sunlight, flowed apparently on to meet it, and filled the whole expanse of the valley like a picture set in a frame.

I have seen many beautiful mountains but for loveliness I think Mount Hood transcends them all —its beauty is almost ethereal. As soon as I could find a landing-place I went ashore to photograph the mountain, but by the time I had landed and got the camera ready, clouds had gathered, almost obscuring the peak, and the picture was not taken. Three times thereafter I attempted to photograph the mountain, but the atmosphere had become misty and each effort was a failure. The accompanying picture of Mount Hood does not show it at its best, which I believe is most favorably seen from the surface of the Columbia River, just below John Day Rapids.



—*Photo. by Reeves*

Mount Hood from Mouth of Hood River

Samuel Bowles in his book, *Across the Continent,* thus describes Mount Hood:

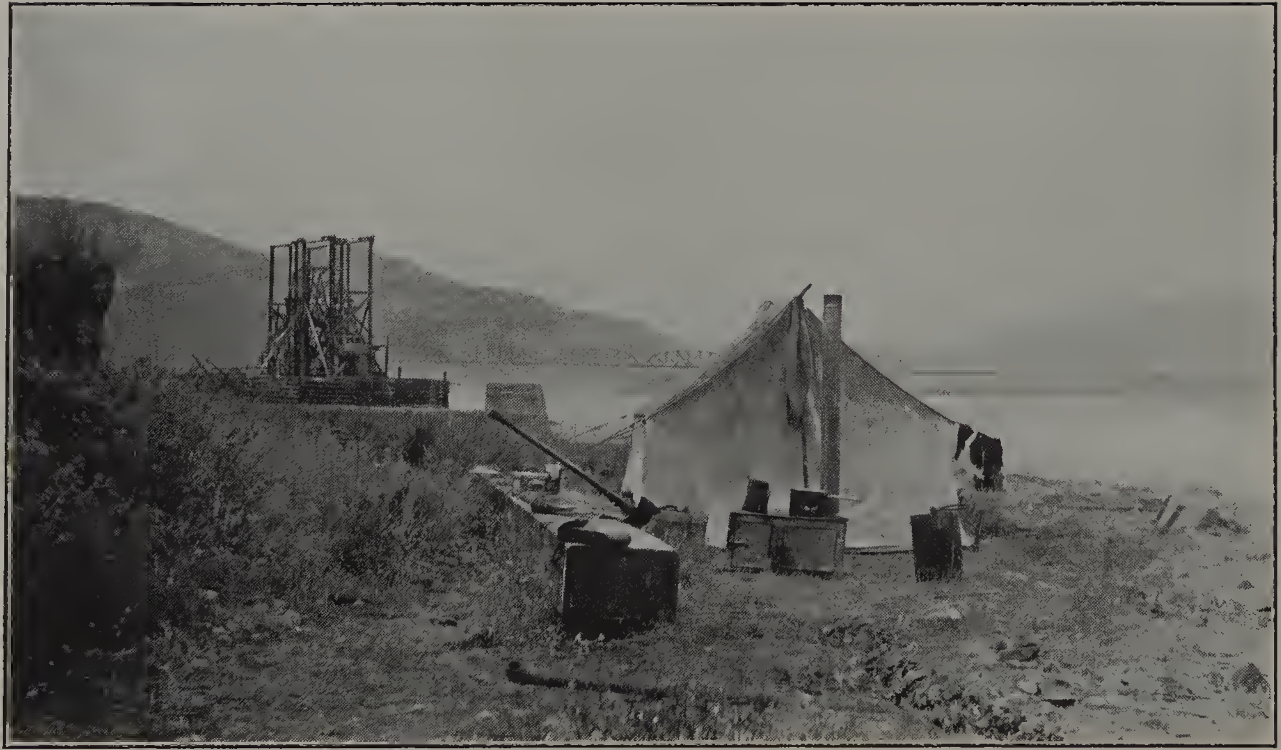
> "But no mountain peak we have yet passed in our journey is seen to so fine advantage as Mount Hood from the Columbia River. It is hard to imagine a more magnificent snow mountain and adding a crowning element to the scenery of the Columbia River."

Joaquin Miller, the poet of the Sierras, pens this tribute:

> "Then clouds blew in, and all the sky was cast
> With tumbled and tumultuous clouds that grow
> Red thunderbolts. . . A flash! A thunderblast!
> The clouds were rent, and lo! Mount Hood hung
> white and vast."

Two miles below John Day Rapids I passed through a riffle called Schofield Rapids, and five miles farther came to where the Columbia is divided into two channels by an island of bare basalt two miles, or more, long. The right-hand channel is known as Hell's Gate, but in spite of its sinister name is not dangerous. The left-hand channel passes by the mouth of the celebrated Deschutes River, which rises on the eastern slope of the Cascade Range, and almost paralleling the range flows northward to the Columbia River. Two competing lines of railway occupy the Deschutes Valley.

As I wanted to see something of the Deschutes, I took the left-hand channel, which curved to the right around the island, and after weaving my way among numerous rocks, against which the now placid river formed no breakers, at the foot of the island found myself in a single channel that continued to Celilo Falls about two miles below.



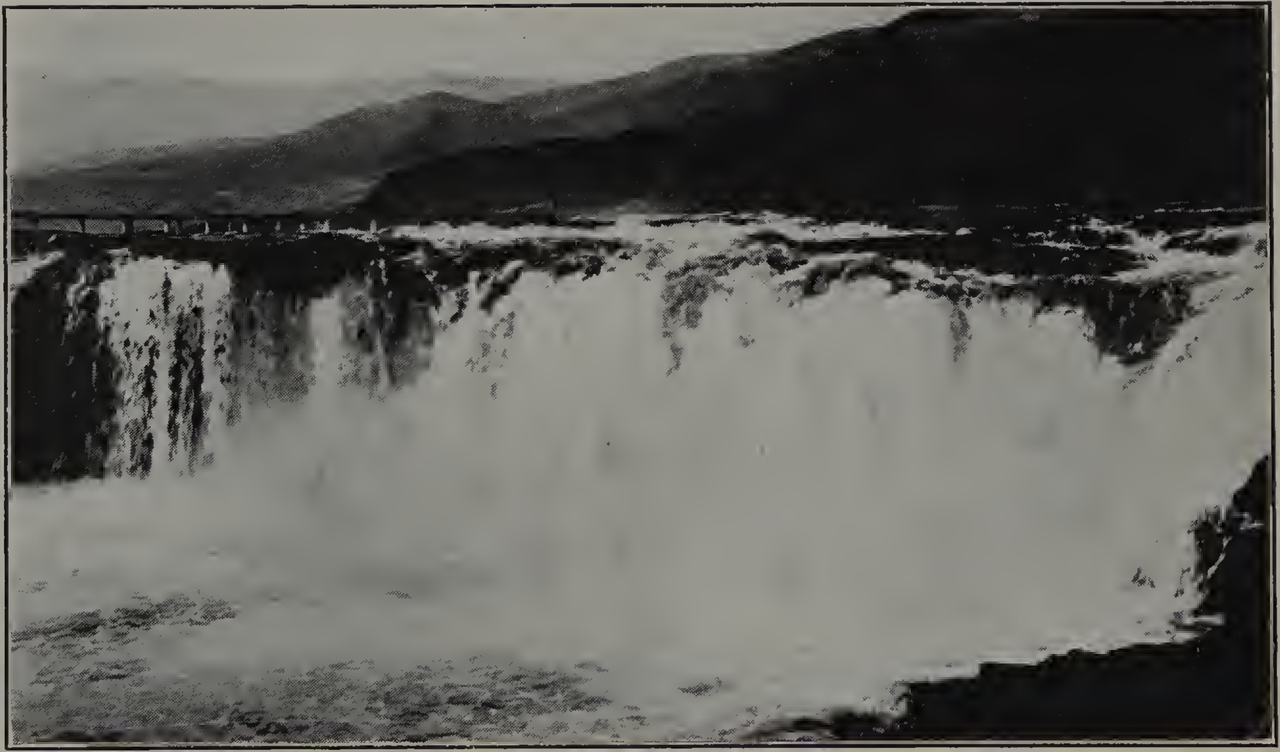
Camp at Head of Celilo Canal

Just above the Falls is the head of Celilo Canal at the Oregon shore; and rising abruptly from the water edge is a flat bench fifty or sixty feet high. Deciding to stay overnight to examine the Falls and take some photographs during the afternoon, it was not long before I had my tent set up and camp established on the bench.

A railway station, called Celilo, has been established at the head of the canal, and besides the station and warehouse and a Government building there are a few dwellings scattered along the hillside. The main settlement is the Indian village, a row of nondescript shanties located on the bench opposite to the Falls, and mainly between the railway track and the highway. Some of the better class of Indians have more pretentious shanties at the base of the hills. The one store and post-office is just below the Indian village.

The Falls are the greatest fishing grounds on the Columbia River—hence the reason for the Indian village. It was here that I first saw a fish-wheel, contrivances that would be numerous from now on downriver until the rise and fall of the tides would destroy their efficiency, as a current is necessary to operate them.

The Celilo, or Tumwater Falls are 22 feet high at low water, are horseshoe shaped, and face and are near the Oregon shore. It is below the Falls that the Grand Dalles commence and continue for about three miles. The Columbia is here filled by a great basalt reef extending from shore to shore through which the water has chiseled its way in narrow

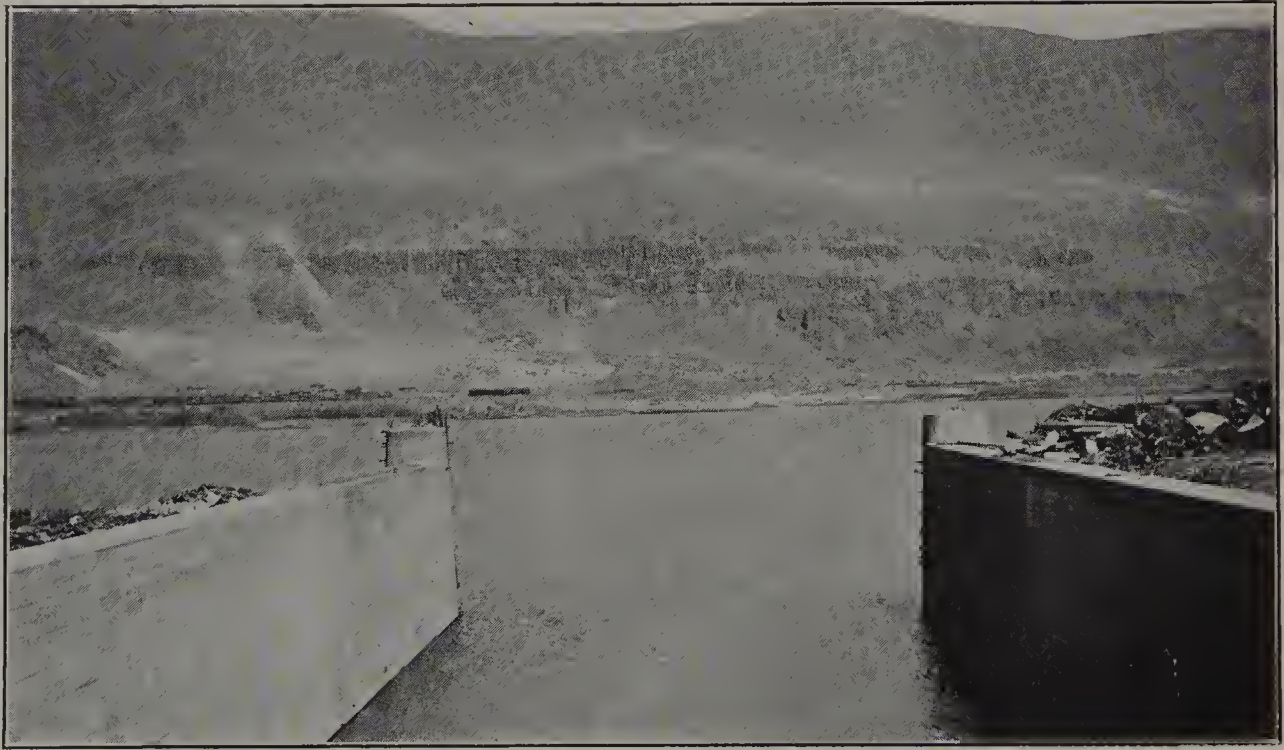


Celilo Falls

channels, and in one place a single channel about 125 ~~175~~ feet wide carries the whole volume of the River's flow. The walls of the gorges thus formed are about 25 or 30 feet high, and between them the water boils, surges, and whirls with tremendous power. The River above the Falls has a general width of about a half-mile and the sudden contraction below acts as a partial dam at the time of floods and raises the water level above until the drop at the Falls is entirely obliterated. During such a condition some of the bolder steamboat captains have run their vessels over the Falls and through the Dalles with safety.

The early navigators of the Columbia were able to go quite a distance below the Falls on the Washington side of the River, and then had to make two portages, one of 1,200 yards on the right-hand shore, and one of 457 yards on the left hand shore. Hand carrying was obviated in 1861 by the construction of a wooden tramway; then came the Oregon-Washington Railway; and now the Celilo Canal affords an easy and safe mode of transportation.

The Celilo Canal was constructed by the National Government, and is operated and maintained by it. It is eight and one-half miles long; much of it blasted through solid basalt in deep, long excavations, in other places the outer walls being built-up embankments. The construction is massive and substantial throughout, and is of four types: Solid rock having an almost perpendicular slope; solid concrete; stone laid in cement; and dry, hand-placed stone—the three last types of walls being laid on varying slopes

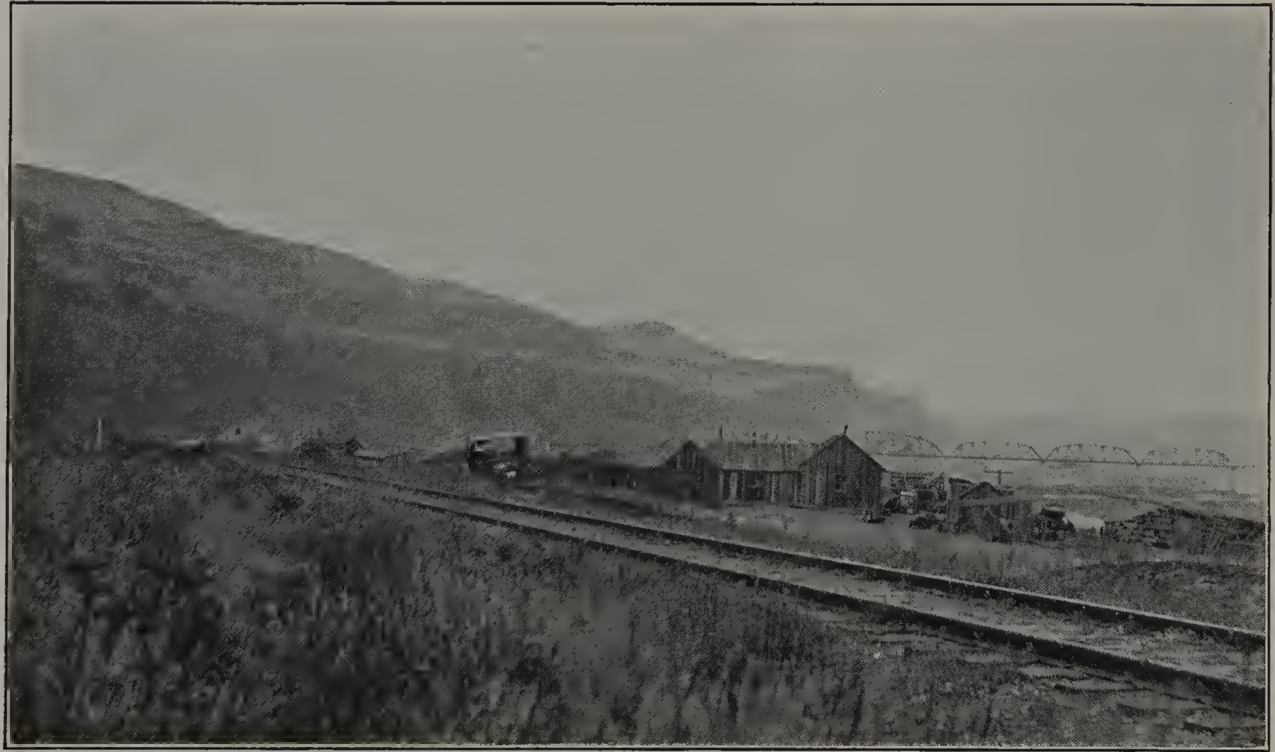


—*Photo. by Saunders*

Upper Entrance to Celilo Canal

to fit conditions. The canal has a total drop of 81 feet, is 65 feet wide at the bottom, with a maintained depth of water of nine feet. Along its length there are occasional basins for the passage of vessels. These are wider than 65 feet and have vertical concrete walls. The head of the canal is an open, vertical-walled entrance, with a controlling gate about a quarter-mile below; a little farther down is another; about midway is the first lock; and at the lower end is the final lock. The canal was completed and opened for use in the Spring of 1905, and cost $4,800,000, and was utilized until the United States entered into the war against Germany and Austria, but I was told that there has been no regular steamboat navigation through it since then.

On the morning of October 22, I was ready to go through the Celilo Canal. The previous evening I had called at the house of Mr. Martin Fides, the lock-tender, and obtained from him a promise to let me into the canal at 8 o'clock in the morning. I was ready on time and rowing through the open entrance found an almost imperceptible current. The first gate was closed, but Mr. Fides opened it, waved me good-bye as I passed through and then closed it behind me. Just below the Falls is the town of Fallbridge, Washington, on the North Bank Road. A 25-span railway bridge crosses both River and canal there and connects with the railway on the Oregon side. This was the longest bridge and the last I was to see until Vancouver, Washington, was reached. I soon came to the second gate, which was wide open, and shortly after arrived in front of the first lock.



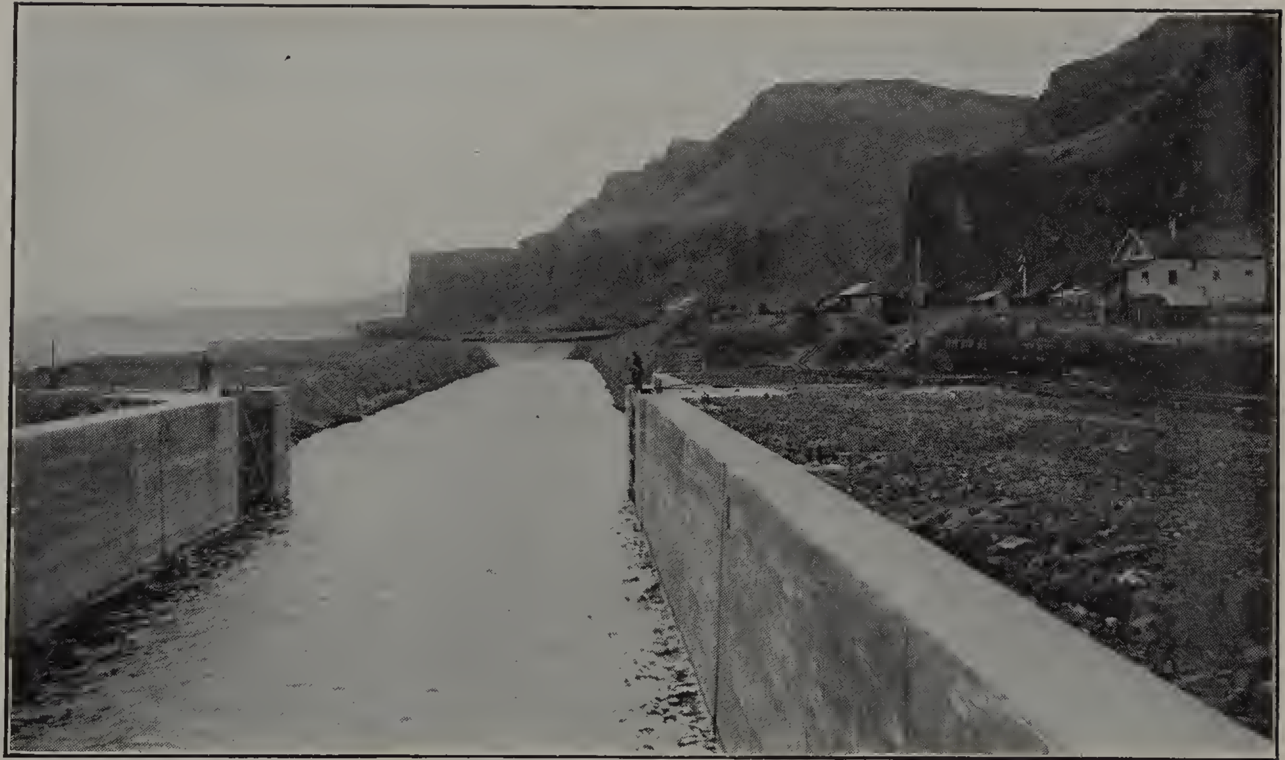
Indian Village at Celilo

This was closed, and tying my boat to the round of an iron ladder I climbed the wall and hunted up the lock-tender who lived in an adjacent cottage.

I will here explain the method of passing through a canal lock, which consists of a vertical-walled chamber with gates at both ends.

The gates are in pairs, of massive steel hinged on the outside to the walls of the lock, and open from the middle upstream like a pair of folding doors. At the bottom of each gate are sluice-ways for controlling the height of the water within the chamber, and each gate has a set of levers operating the sluices from above. The gates are opened and closed by steel cables connected with a vertical drum extending to the surface of the masonry, above the gates, and which is turned by a lever, the operator walking around in a circle as is done when turning a capstan. Both sluice-ways and gates are operated by hand-power at the Celilo Canal.

For a vessel to gain admission to a lock chamber from above, the water above and within the lock must be brought to the same level, which is done with the lower gates and sluice-ways closed, and the upper gates closed and their sluice-ways open, thus permitting the water to flow into the chamber and be backed up by the lower gates until it rises to the height of the stream above. While this is being done the vessel waits until an equilibrium has been established, when the upper gates are opened and she enters the chamber, the gates just passed and their sluice-ways being closed behind her. She is now locked within the chamber with the water therein at a higher level

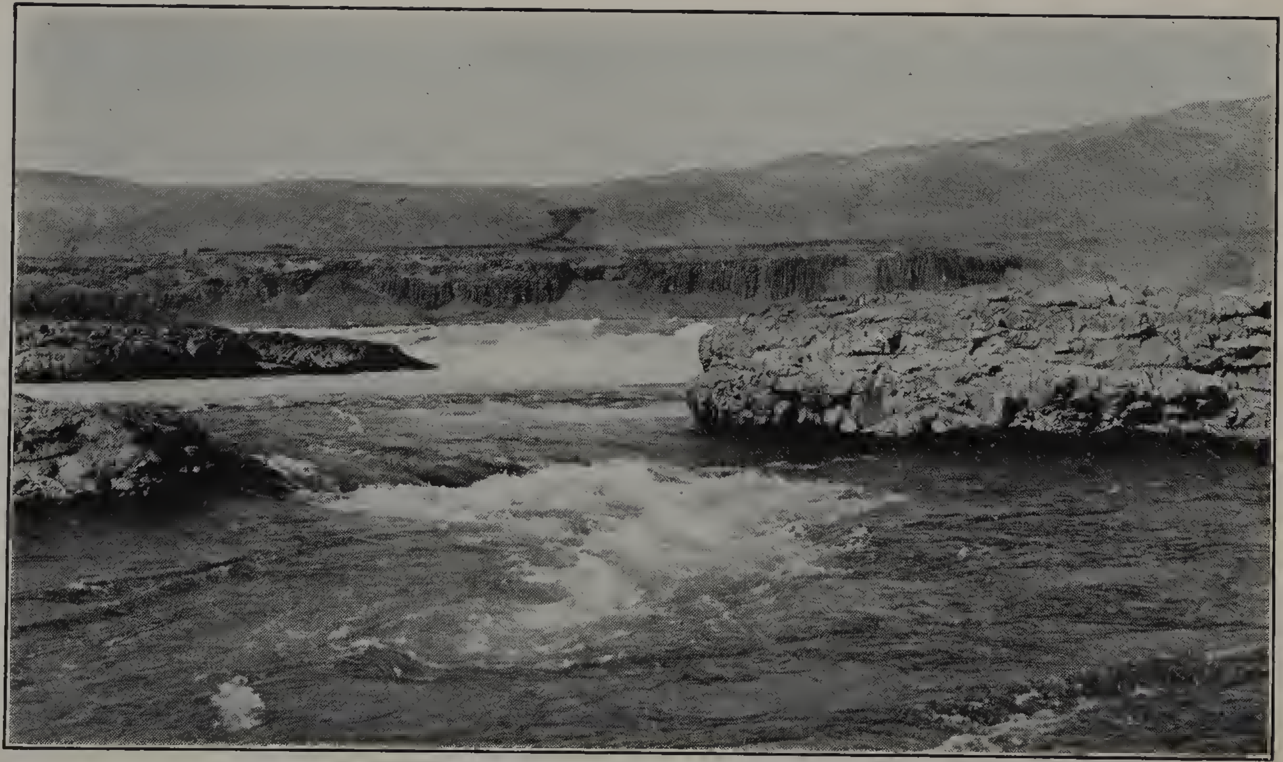


--*Photo. by Saunders*

First Gate in Celilo Canal, Store on Right than that below it, and to which it must be lowered. This is done by opening the sluice-ways at the lower gates, and as the water subsides the vessel goes down with it to the lower level, the gates below are opened and an exit is made from the lock, a vertical step in the canal being overcome.

The lock-tender passed me through the lock in the manner described, and continuing on my way I was approaching the last lock, at the end of the canal when two men in a motor boat flashed past, going upstream. They had no sooner got by than they turned their boat and came back, and as they repassed me one of them called out, "We'll be there when you get there." In a short time I reached the lock and making my boat fast climbed to the top of the masonry where the men were awaiting me. They introduced each other to me as T. W. Saunders, the civil engineer in charge of the canal, and Captain S. V. Winslow, master of the Government steamer Umatilla, which was docked in the basin just above the lock. Both men were much interested in my trip down the Columbia, and had followed my progress as it was featured in the newspapers published in the various towns on the way. They had recognized the COLUMBIA—hence their quick return to pass me through the lock.

The final lock in the Celilo Canal is at Big Eddy and is similar to the one above it. After spending a pleasant half-hour talking to the two men they opened the gates, I was dropped down to the lower level, and was again back in the River channel. With considerable current, but good going, in six miles I

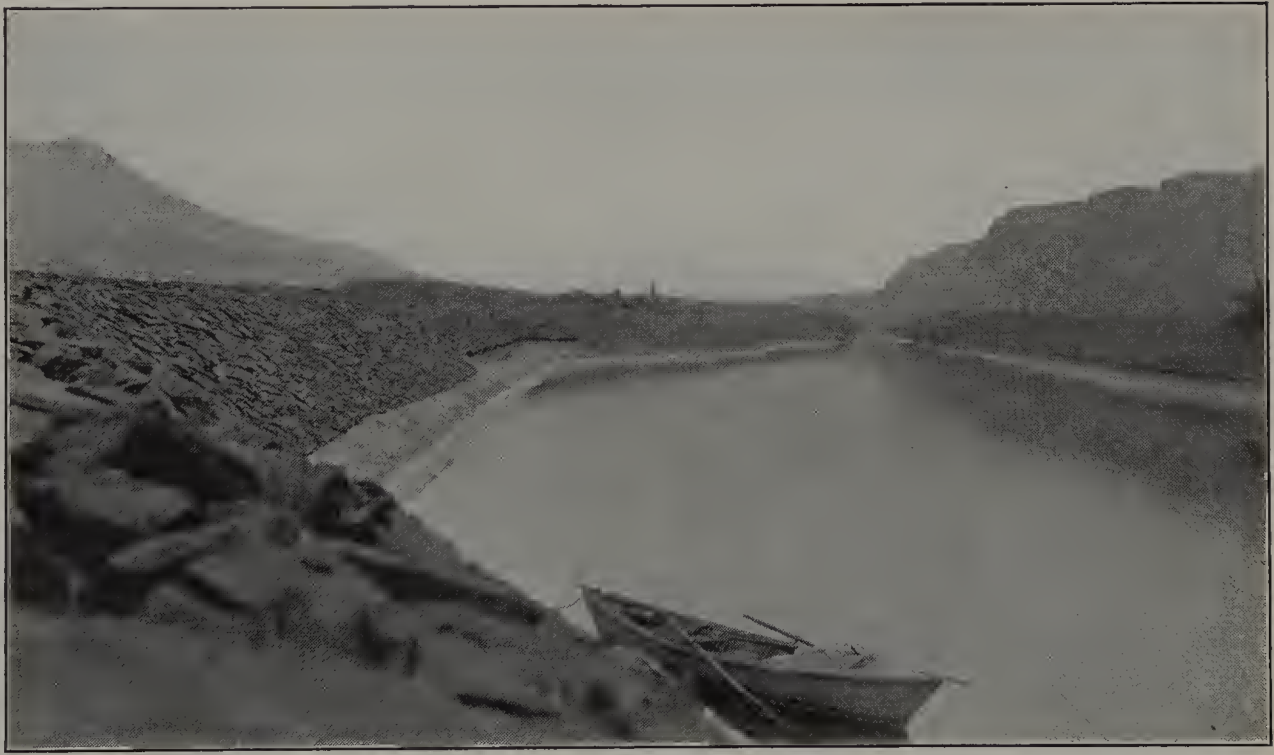


—*Photo. by Prentiss*

THE GRAND DALLES

came to The Dalles City early in the afternoon, and rowing down to its lower end found a decent campground on a low bench amongst some willows. Here I planned to halt for a day.

The Dalles City is one of the oldest towns in Oregon. It was originally called Fort Dalles and established as a fur trading station. It is the present head of navigation on the Columbia River, the end of the old "Oregon Trail," and almost at the eastern base of the Cascade Range. It is located on a considerable expanse of ground rising gently south from the Columbia River, affording plenty of room for growth. The neighboring hills, on both sides of the River, have now reached a high elevation and rise a thousand feet above the valley, and while they are still bare and devoid of native growth, farming is extensively carried on, and fruit growing, fostered by irrigation, again becomes prominent. The city is well built, clean, and progressive, with a population of 6,000; and is the county seat of Waco County. The Columbia River Highway passes through it, and it has three lines of railways — being the division point of one of them. A power ferry connects it with the Washington shore. A tributary population of 50,000 people is served by the city as a business center; and in addition to other shipments it has the reputation of shipping more wool than any other station in the United States. It has its fruit packing houses, and box shook factories, and the first fish cannery to be seen as one comes down the Columbia River. A modern, gravity water system brings the city's supply of water direct from Mount Hood.



The Columbia in Celilo Canal

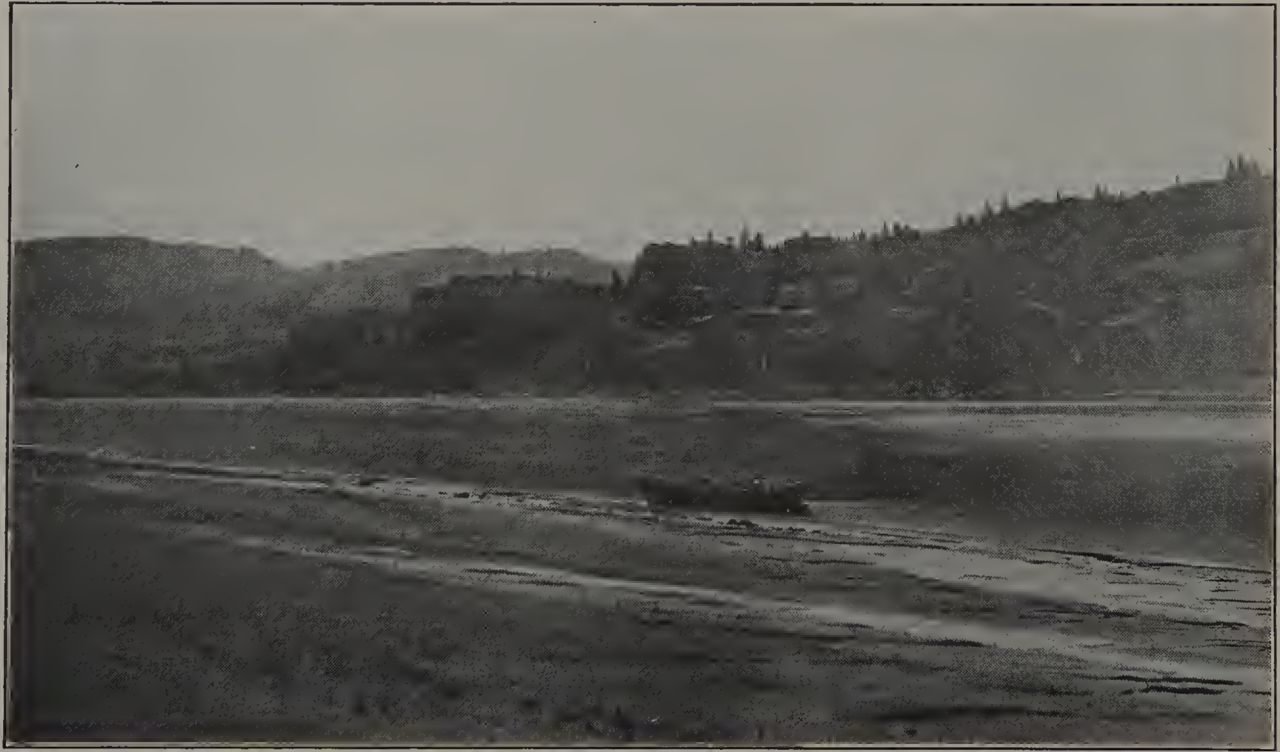
CHAPTER XXV

FROM THE DALLES CITY TO VANCOUVER

The autumnal rains began in earnest the day after my arrival at The Dalles City, and the frequent showers thereafter, and the heavy morning fogs, which did not lift until late in the forenoons, materially delayed my progress towards Astoria.

It was noon of October 26 before the weather permitted me to again get under way. A noticeable change in the appearance of the country became apparent. I was getting within the embrace of the Cascade Range. Five miles below the The Dalles City, scattered, stunted pines began to appear on the mountainous sides, and then oak trees. The mountains rise higher and higher, and the timber becomes larger and thicker, gradually merging into a dense forest which prevails the rest of the way through the Cascade Range.

I had traveled twelve miles and had just passed Lyle at the mouth of Klickitat River—a considerable stream entering the Columbia from the north—when I came abreast of a bare, flat-topped, rock island on which stood a lone, white marble shaft with an enlarged base. It seemed a queer place for a monument and I afterwards ascertained that the shaft covered the resting place of Vic. Trevett, and was on Memloose Island, one of the Chinook Indians' "Burial Places of the Dead." The Indians

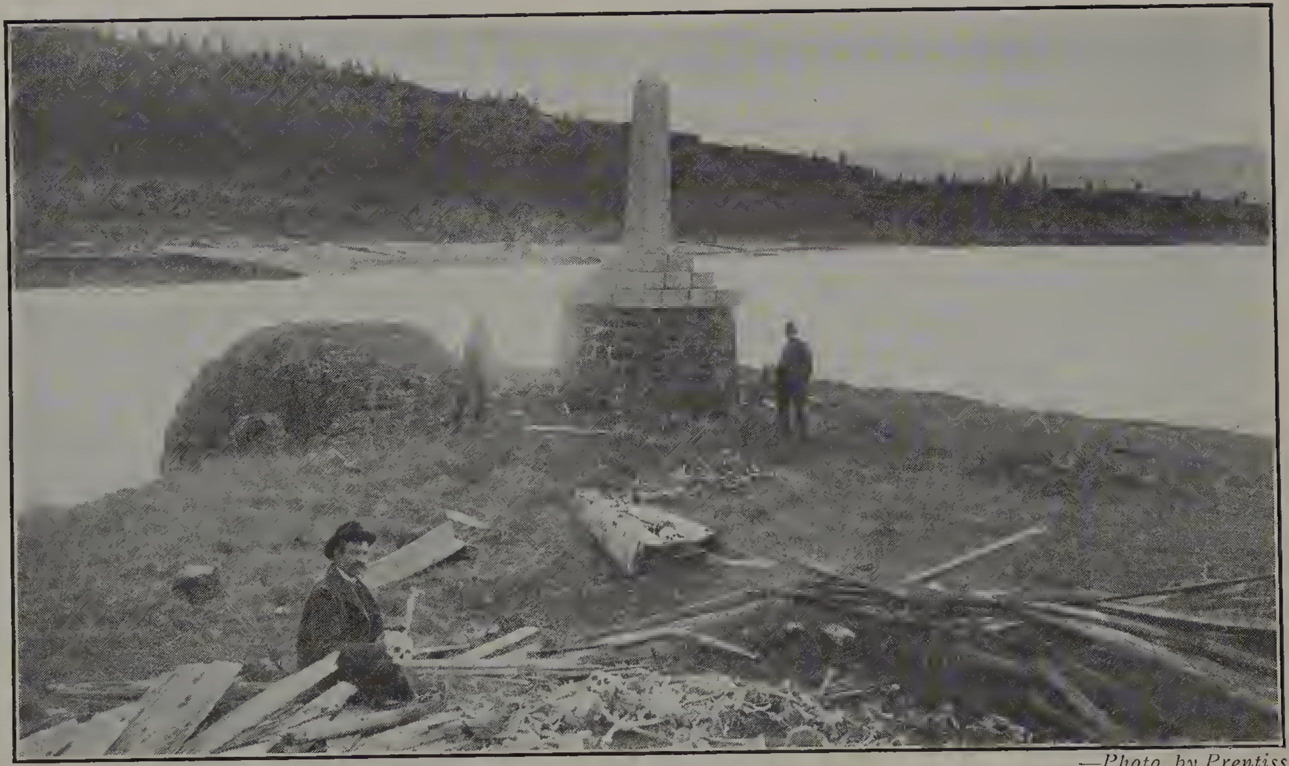


First View of Timber in Cascade Range, also Showing Terraces had a custom of burying their dead on rocky islands in the River where their bodies could not be reached and devoured by wild beasts. To such a place the dead man and his canoe were carried and raised to the top of the rock; the canoe was then fixed so that the bow was slightly raised, a hole bored in the stern for the egress of water, and the body resting therein was covered with mats.

Vic. Trevett, one of the early pioneers and a friend of the Indians, expressed a desire that in the event of his death he be buried alongside of his red friends. His wish was granted. Dying in San Francisco, his white friends conveyed his body to Memloose Island, there buried it in civilized fashion and erected over it the monument that for the time being immortalizes his memory, for his resting place is pointed out daily to travelers on trains, steamers and highway.

A few miles below Memloose Island I reached the town of Mosier, Oregon, a small place on the railroad, about a mile south of the River. It was again raining and I made camp and pitched my tent on the flat beach near where a houseboat, in which a man was living, was high and dry on the shore.

It was not until 11 o'clock in the morning of October 28 that the weather permitted leaving Mosier. A seven-mile row brought me to the mouth of Hood River, where I went ashore to investigate the City of Hood River which is located on the northern slope of the hills about a mile south of the Columbia River. Hood River skirts it on the east. To reach the business section of the city I had to cross the



—*Photo. by Prentiss*

Vic. Trevitt's Monument on Memloose Island tumultuous Hood River on a great concrete highway bridge 295 feet in length, just above the steel bridge of the Oregon-Washington Railway. This brought me to the main street that climbed a gentle ascent to the west.

Hood River rises at Mount Hood and paralleling the Cascade Range flows northerly to the Columbia. Immediately across from its mouth is the mouth of White Salmon River which, rising at Mount Adams, flows southerly to the Columbia. These two streams form a practically continuous valley noted for its fertility and the quality of its farm products. What is called the Hood River Valley is not exactly a valley but a series of table-lands rising towards Mount Hood. Here are raised the apples, pears, cherries, and berries that have made Hood River famous the world over.

Hood River City has a population of 3,200. Being in the heart of the forested district of the Cascade Range, its lumber interests are extensive, ranking next to fruit. The lumber shipments from the county amount to about $750,000 annually. Transportation facilities are afforded by the Columbia River, the Oregon-Washington Railway, and the Columbia River Highway. Being the most convenient place from which to reach Mount Hood, local transportation is afforded by the Mount Hood Railroad extending southward up the valley twenty-three miles to Parkdale; and from thence a highway about ten miles long reaches Cloud Cap Inn, three miles, in an airline, from the summit of the mountain. An abundant water supply, fresh from

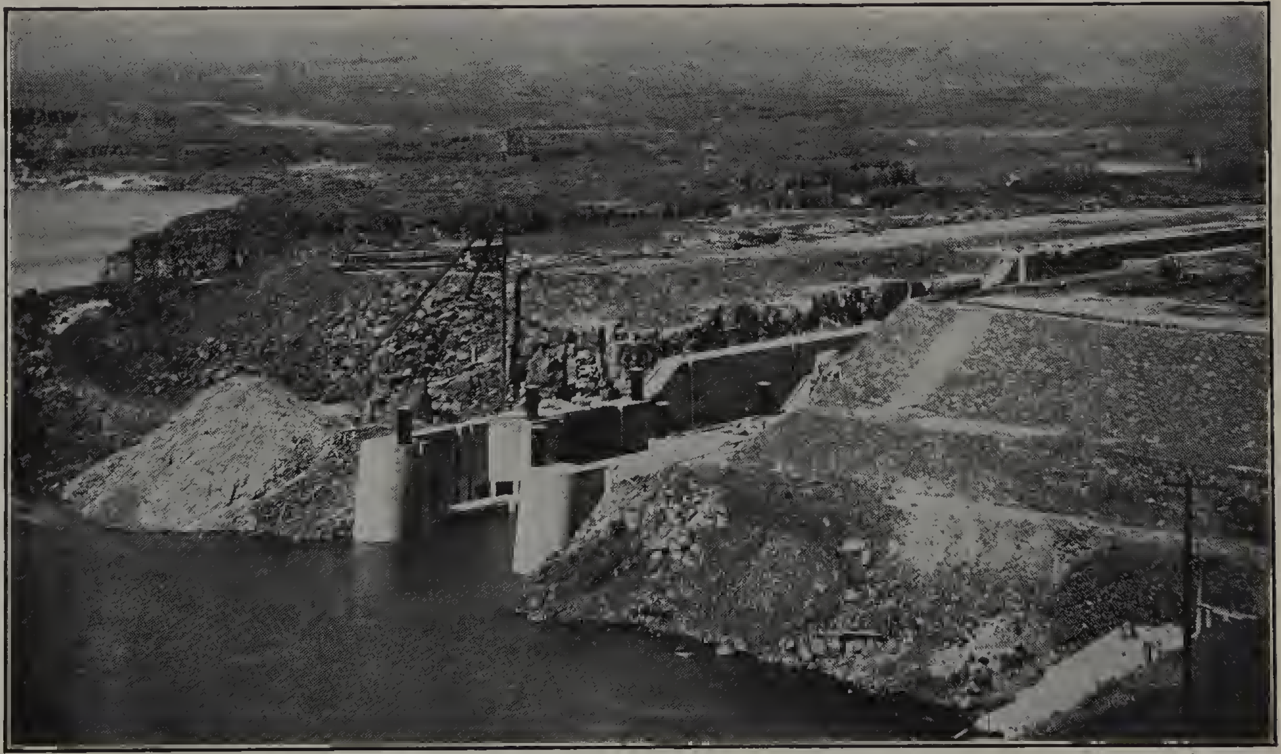


Photo. by Saunders

Lower End of Cascade Locks

the snows of Mount Hood, is at all times available for power, irrigation, and domestic purposes.

Leaving Hood River I was rowing leisurely down a gentle current and had come abreast of a large sandbar that put out from the Oregon shore when a squall of wind and rain, too strong to contend with, forced me to make a landing. A quarter-mile away, across the bar, was the evergreen forest at the base of the mountains. Not knowing how long the rain would last I started for the shelter of the trees and as I raced across the bar I noticed a half-dozen dirty, greasy looking men hurrying for the same shelter. I wondered what they were doing on the sandbar, but when I reached them I saw their clothes were covered with oil, and learned that they were spraying the sand with crude oil to keep it from drifting over the rails and covering the track of the Oregon-Washington Railway, which skirts the edge of the bar.

In a short while the squall passed by, scurrying on its way upriver, and resuming my journey it was not long before I was weaving my way among a lot of scattered tree stumps rooted in the bed of the River, their broken tops projecting a few feet above the surface—the celebrated Sunken Forest of the Columbia. A little farther and I was at the Upper Cascades, and the head of the Cascade Canal, eighteen miles below Hood River.

I had now reached the last obstruction to the navigation of the Columbia River. Above is a wide stream with a sluggish current which now becomes narrowed to a quarter-mile in width, is swift, and in

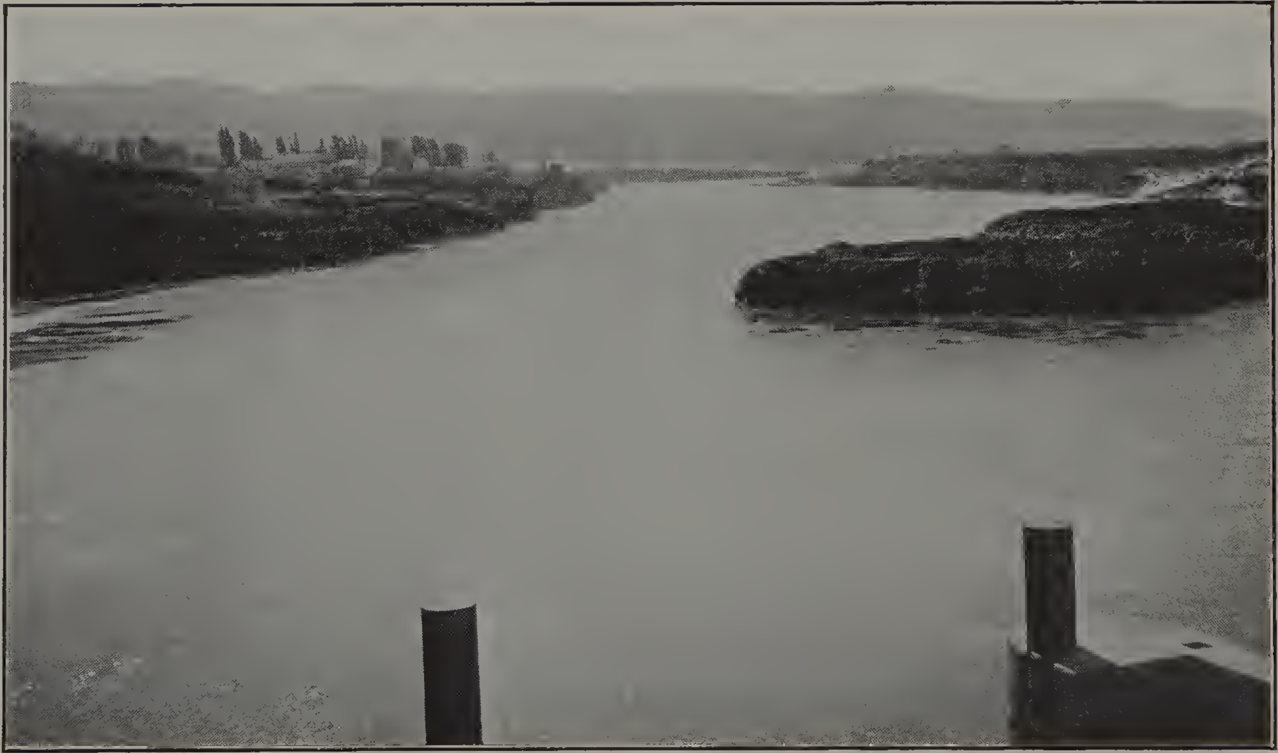
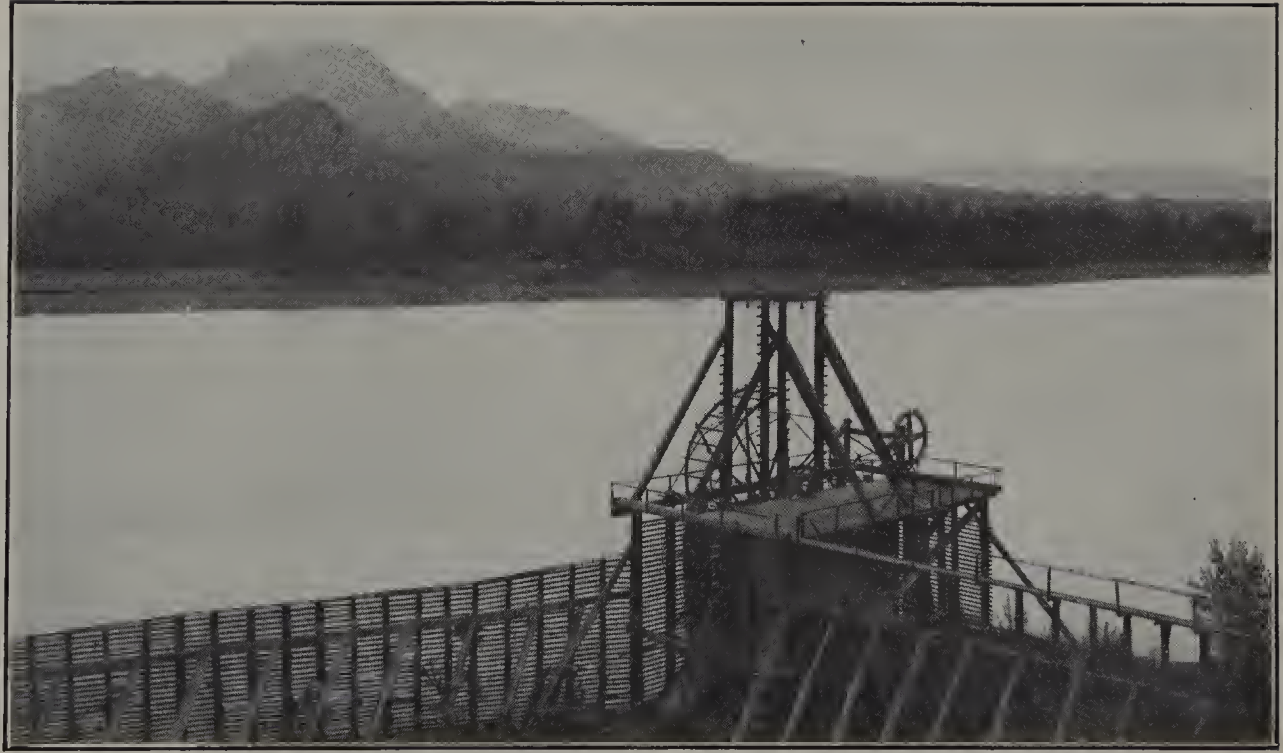


Photo. by Saunders

Low
The T~~ow~~-walled Gorge Below Cascade Locks

a distance of five miles there are three rapids known as the Upper Cascades, a mile long; the Middle Cascades, a third of a mile long; and the Lower Cascades, a half-mile long, the last being located at the backbone of the Cascade Range. The two lower rapids were not serious at the time I ran them; but the upper one, from what I could see from the Oregon shore, was a vicious, tumbling mass of froth-crested water. The Upper Cascades are crescent-shaped, curving towards the Washington shore around a rock island at the Oregon side and terminating against the Oregon shore. It is here that the National Government has built a canal and locks south of the rock island and connecting the open river above with the lower end of the upper rapids. The canal consists of an open entrance 3,000 feet long, and two, or tandem-locks, one 469 feet long, the other 462 feet, having a width of 90 feet, a combined lift of 22 feet, and a low water depth of 8 feet. The construction is more massive than that at the Celilo Canal, and the gates are larger, and instead of being flat are curved, transversely, on the upper side. The cost, complete, was $4,000,000, and the canal and locks were opened for traffic in 1896 and have been constantly used since then. Hydraulic pressure derived from a close-by stream operates the machinery.

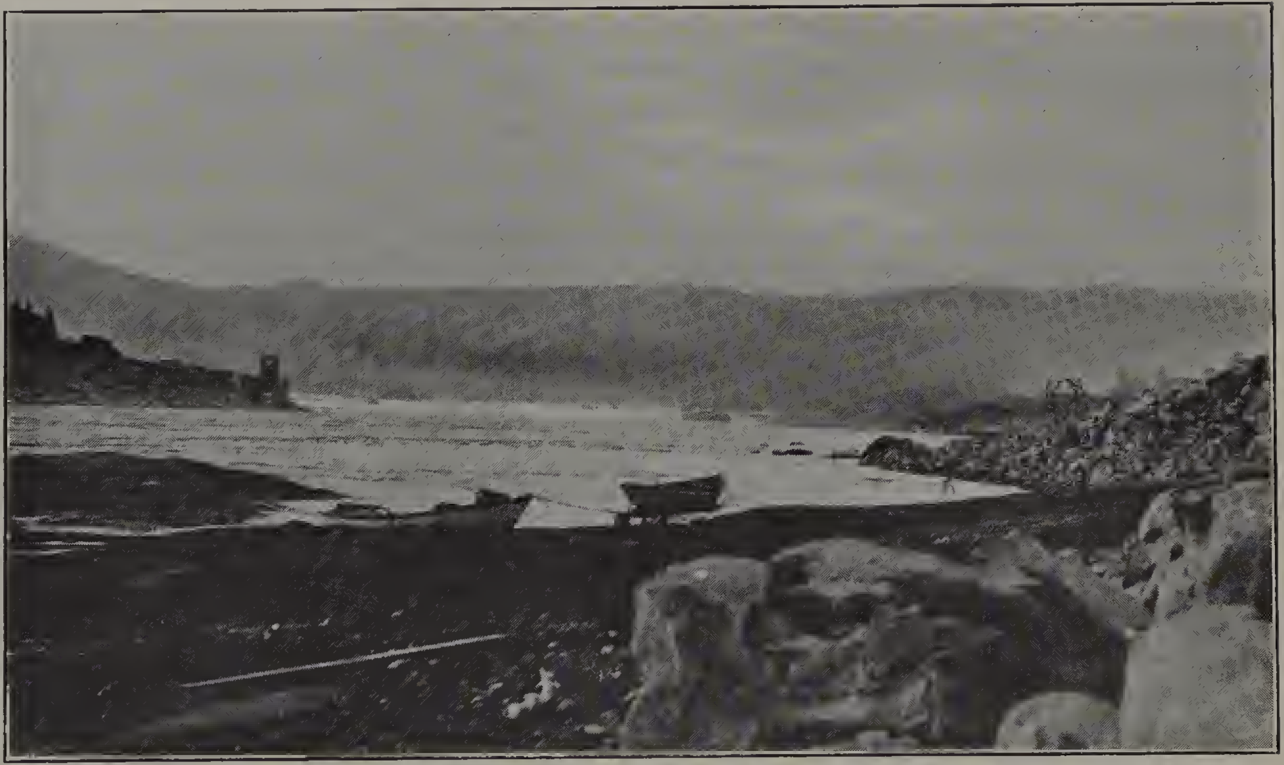
The Indians have the usual legend to account for not only the Cascades but the sunken forest. The story goes that at one time a natural bridge spanned the Columbia at the place, which the Great Spirit made very beautiful for his red children. At



—*Photo. by Prentiss*

Table Mountain, Backbone of Cascade Range that time Mount Adams on the north, and Mount Hood on the south were active volcanoes, and were considered to be the abode of two great gods. These gods became angry and warred with each other. Battling from afar they threw great rocks and boulders at one another, many of which fell in the River, destroying the bridge and obstructing the channel, forming the rapids. When the strife had ended, the Great Spirit placed the trees in the water, above the rapids, as a token of the bridge, and since then the trees have turned to stone. Cold science has proved, however, that the Cascades were caused by a great landslide from the mountains on the south, which not only dammed the River but brought into it a part of the forest, a remnant of which remains. It has also been proved that instead of having become petrified, the stumps still consist of sound timber. A corroboration of the landslide theory of the formation of the Cascades is the fact that, in some places, the hillsides are still constantly sliding downwards, as is evidenced by the shifting of the roadbed of the Oregon-Washington Railway, necessitating frequent adjustment and correction of the alignment of its track.

I reached the head of the Cascade Canal just as the steamboat J. N. Teal was entering the locks from below. The entrance has vertical, concrete walls extending all the way to the locks, and similar to the entrance to the Celilo Canal. Making my boat secure to the shore above the entrance I walked down to the locks where I found the lock-tender busy with the work of bringing the Teal from the lower



The Bay Below Cascade Locks, Cascades in the Distance to the higher level. Explaining to him who I was, and requesting passage through the locks, I was told to hurry back to my boat and the gates would be opened for me as soon as the Teal had passed through them. The Teal came abreast of my boat just as I reached her, and slipping into the entrance, I was soon at the first gate. No formalities had been required of me at the Celilo Canal but now, at the gate, the lock-tender standing above on the wall requested me to fill out and sign a blank form giving the character, size, name and master of my boat. I reached for the paper with the fishing-pole I carried and, after complying with the requirements and returning the form, the machinery of the gates was operated and I was soon turned loose in the channel of the River, having come down a double-step.

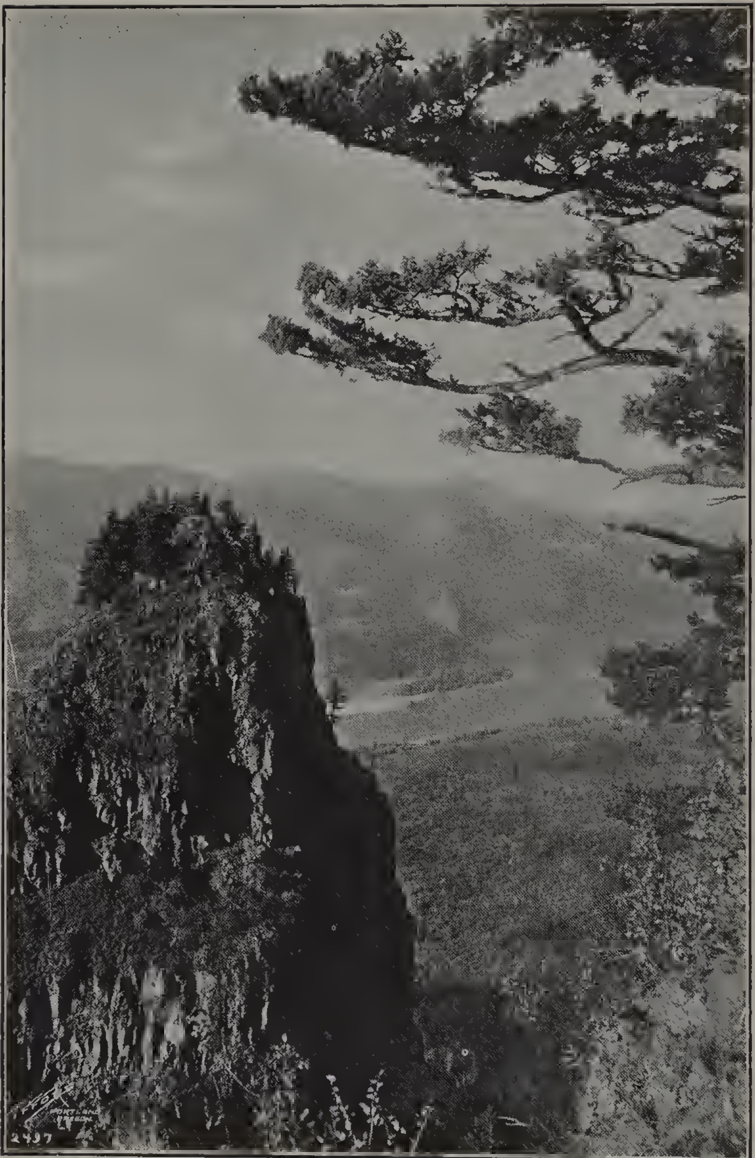
As has been indicated, the Cascade Canal does not span the full length of the Upper Cascades, but their lower end extends more than a quarter-mile below it. Here the River channel is but a quarter-mile wide and is filled with numerous rocks, mainly on the Oregon side, among which the swift current makes agitated, white-crested water. It must be understood that I had had no opportunity to examine what was below the locks but had gone through them blindly with only the knowledge that steamers navigated the River below them. As soon as I saw what was ahead I decided to go ashore, examine the rapids at my leisure, and determine the best route through them. This I did in a little bay of quiet water that has formed just below the locks on the Oregon side. By the time the situation was

Beacon Rock and Fishwheel

"sized up" the sun had set and it behooved me to make camp—but I could find no suitable place to put up a tent or make a bed. There was a flat bench above the bay on which was the railway roadbed, but that, and the whole hillside exuded moisture and there was no dry ground anywhere, either on bench or beach—everything was wet, even the dead timber lying around.

It was too late in the day to run the rapids and chance finding a favorable camping ground on the shores below and my only alternative was to secure the COLUMBIA safely in the bay, leave the whole outfit for the night and go back, afoot, the half-mile to the village of Cascade Locks and there seek meals and shelter. Across the River on the Washington side, not far above my landing place, there is still standing the old block-house erected in 1856 as a protection against the Indians. It was here that Lieutenant, afterwards General, Phil Sheridan had his first skirmish with the redmen. Someone else had a skiff anchored in the bay and, leaving my boat beside her, I walked up the railway track to the village, found good accommodations and had a badly-needed bath. That night I had a refreshing sleep in a real bed, for the first time since leaving Fairmont Ranch, just four and a half months previous.

My investigation of the rapids the evening before showed that the steamer channel was not on the Oregon side but well towards the Washington shore, and while the water was choppy, all that was needed was careful running to avoid all the rocks. Leaving the village of Cascade Locks early in the morning



Copyrighted—Photo. by Gifford

St. Peter's Dome, Mt. Adams in the Distance of October 30, I returned to my boat, found everything intact, and putting diagonally across the bay to the right, to the head of the steamer channel, and easing into it backwards, kept clear of all the rocks and much of the breakers, a few minutes sufficing to carry me through all the rough water. The River continued to be contracted and a swift current soon brought me to the Middle and then the Lower Cascades, both minor rapids through which I ran without stopping, and I was at tide-water with a placid, sluggish river ahead to the sea. The last of the 107 rapids of the Columbia River had been passed.

The contracted channel continues for another mile and then an expanding river flows through the greatest scenic section of the Cascade Range. Three miles below the Lower Cascades I noticed a great isolated rock near the water edge on the Washington shore, and landed to photograph it. This was Beacon Rock, a landmark that is seen for thirty miles from downriver. In the form of a truncated pyramid, it towers up to a height of 840 feet, vegetation clinging to the crevices in its sides and scattered trees adorning its summit. A large fish-wheel is just upstream in the shallow water along the shore. Almost due south of Beacon Rock and just below the town of Warrendale, Oregon, two miles from the River, St. Peter's Dome, a mighty, castellated cliff, rears its head 3,000 feet in the air with an almost sheer face of 2,500 feet. Below St. Peter's Dome for a distance of nine miles are a series of waterfalls—Horsetail, Oneonta, Multnomah, Wahkeena, Bridal Veil and Latourell. Of these, Multnomah Falls

—Photo. by Prentiss

MULTNOMAH FALLS

were the only ones I could see as I passed. They are at the mouth of Multnomah Creek and reach the River in two sheer descents, the first 720 feet, the second 130 feet.

I had been traveling along the Oregon shore after leaving the Cascades and below Warrendale what had been a scarcely perceptible breeze from upriver developed into a steady blow. This was the second favorable wind I had experienced since leaving the upper Columbian Lakes. Thinking to accelerate my progress, I again spread a sail in the same fashion as the one rigged up on Lower Arrow Lake. Sailing, however, was a help for but a short time, the wind became a menacing gale, carrying canvas was unsafe and I hauled it down. Suddenly the air current veered and with somewhat abated force blew upriver, and for the balance of the day it was a case of "bucking" wind and waves.

To follow the channel it was necessary to cross to the Washington side at a bend where the River was a mile wide. The wind had stirred up the surface into good-sized whitecaps and with the waves slapping viciously against the bottom of the boat I made the crossing, passing on the way Lone Rock, a solitary, bare basalt islet about forty feet high, and almost in the middle of the River.

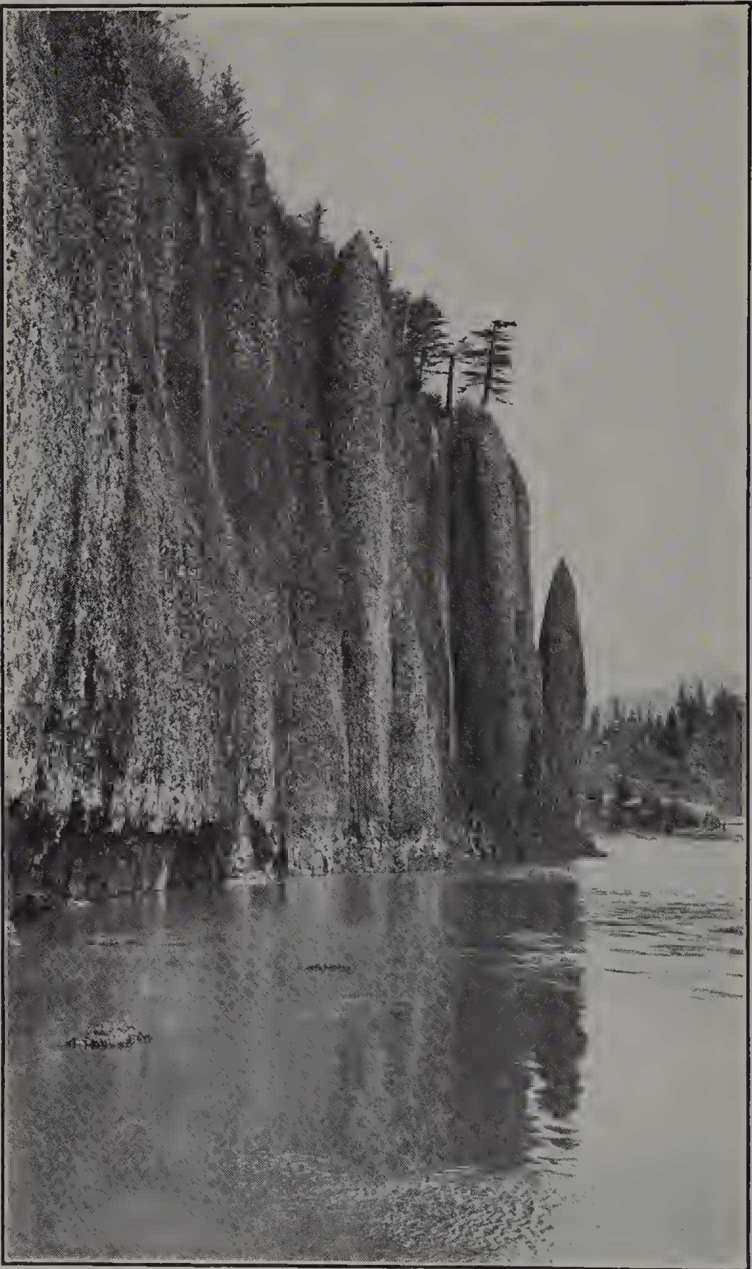
About a mile below Lone Rock I landed for a short time at the base of Cape Horn. These peculiar, symmetrical, columnar cliffs rise directly out of the water on the Washington shore to a height of 400 feet. They resemble giant cigars, standing vertically with pointed ends uppermost, and are

Lone Rock

sometimes called "Cigar Rocks." Across on the Oregon shore are the Pillars of Hercules, two towering, cone-shaped rocks, one behind the other, with the railway track passing between them. They are bare, except that the one to the north is crowned with a single, scrawny fir tree. Below the Pillars of Hercules, three miles from Cape Horn, I passed Rooster Rock, the last striking feature of the passage through the Cascade Range. It is at the water's edge on the left, is 350 feet high, bare of vegetation but backed by a heavy growth of fir and pine. Why it has been dubbed Rooster Rock is not apparent as it bears no resemblance to a bird of any kind.

I had a steady pull against a strong wind all afternoon and after reaching Rooster Rock began to look for a camping ground. Both shores were rocky and uninviting but I finally found a narrow point under the embankment of the North Bank Road sufficiently covered with soil to permit the driving of stakes and there set up my tent. Some old, used, railroad crossties served for firewood. The wind continued strong all night and at sunrise rain set in, falling steadily until noon. By 12:30 I had broken camp and was again afloat.

Six miles below Rooster Rock the Sandy River enters the Columbia, and the Cascade Range terminates and turns abruptly southward; but on the Washington side the Range continues as low hills gradually reduced in elevation until at Vancouver they are but 200 feet high and then trend away from the River to the northwest. Sandy River has formed



—*Photo. by Prentiss*

Cape Horn

a delta at its mouth extending northward from the base of the mountains about two miles towards the Washington shore, and upstream, in the Columbia, about three miles to near Taylor Siding, on the railway; from which point downstream to the Willamette River the bottom-land is from one to three miles wide, and is low, marshy, and filled with innumerable lakes and sloughs, some of it inundated at high tide. The Oregon-Washington Railway leaves the Columbia just below Taylor Siding and pursues the most direct course to the City of Portland where it crosses the Willamette seven miles south of the City of Vancouver which is on the northern side of the Columbia River. The Highway turns inland at Rooster Rock and threading several low passes in the hills reaches Sandy River, crosses it, and from thence takes a direct course to Portland.

On account of the late start and some head-wind and adverse tide the distance traveled on October 31 was about eight miles and about sunset I reached Lady Island, a rocky, timbered island about three-fourths of a mile wide and two miles long, directly in front of the town of Camas, Washington, at the mouth of Washougal River. The main channel of the River is south of the island, but on the north is a narrower one having sufficient depth of water for steamboats to reach Camas, where the most extensive paper mills in the northwest are located. At the head of the island I found, among the trees, a grassy meadow sodden with the recent rain, and here I pitched my tent and made my boat secure

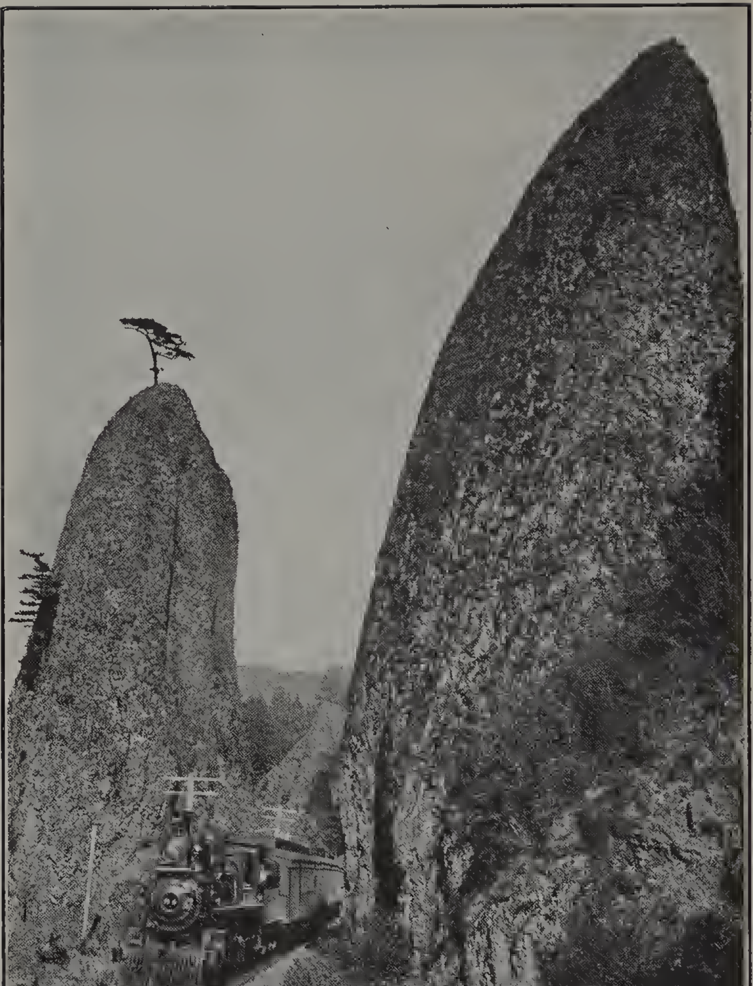


Photo. by Prentiss

Pillars of Hercules

against any rise in the tide, whose fluctuations at this section of the River I was not familiar with.

A heavy fog shrouded the River on the morning of November 1, and it was not until 10 o'clock that the air became clear, and as it did so Mount Hood loomed up on the southern horizon. Breaking camp and loading the boat I pulled across the channel to the Oregon shore where there was a favorable place from which to photograph the mountain. I had no sooner landed than a considerable breeze arose, filled the air with flying sand, and although I waited for a lull and timed an exposure, the negative showed no trace of Mount Hood.

Continuing down the main channel, in a short distance I found myself among a half-dozen low, basalt islets. On one of these, in the middle of the channel, is a steel tower carrying an electric power line from Lady Island across to the Oregon shore. A mile and a half farther brought me to the lower end of the channel leading to Camas. Here, against the Washington shore I saw the first log-boom there is in the Columbia below the Canadian line. Just below Lady Island, towards the Oregon shore, is Government Island, almost a mile wide and five and one-half miles long. It is low and marshy. There is nothing of particular interest on either shore or in the River until the City of Vancouver is reached five and one-half miles below Government Island. I arrived there at 3:30 o'clock in the afternoon and found a place to camp just above the city on a low bench against the embankment of the North Bank Road. The spot I had selected was on the Govern-

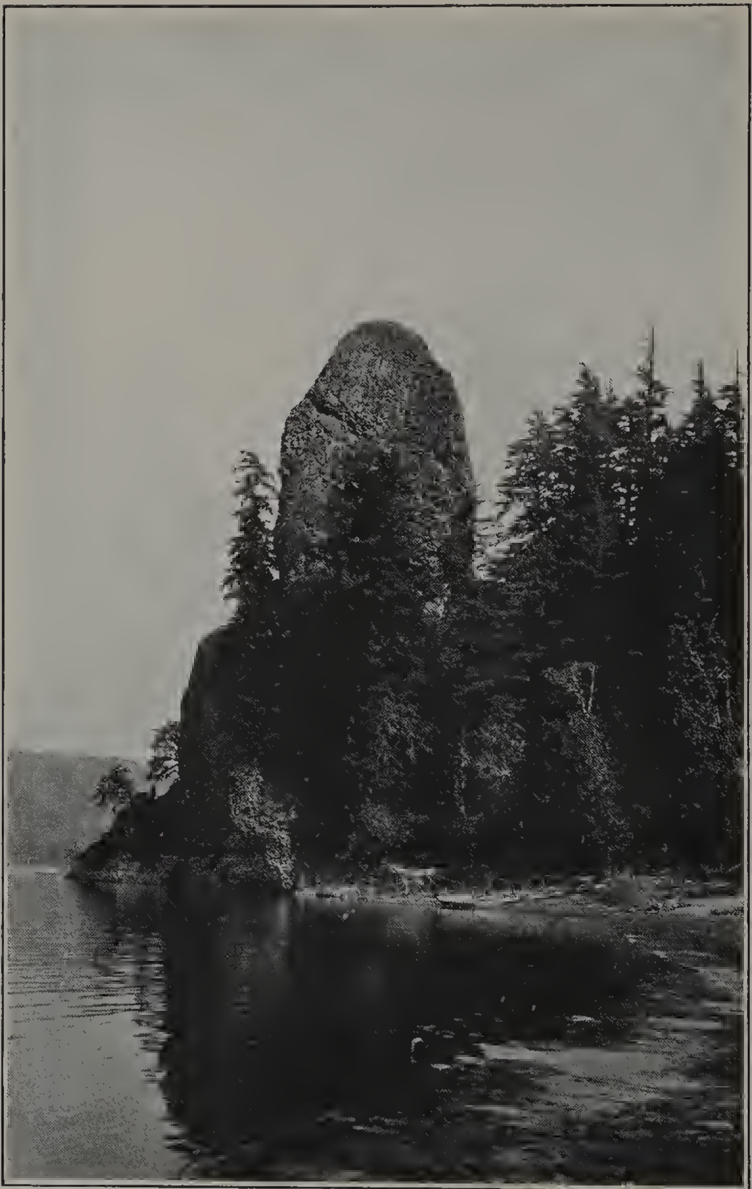


Photo. by Prentiss

ROOSTER ROCK

ment Military Reservation, and across the railway embankment, directly back of my tent, was the soldiers' shooting range.

The City of Vancouver, Washington, embraces the site of Old Fort Vancouver which was for many years the capital of the Hudson Bay Company's enterprise on the Columbia River. The fort was erected by that company in 1812 and remained under Canadian control until 1846 when the United States-Canada Boundary was established, to the north, at the forty-ninth parallel of latitude. Since then it has grown into an American city with a population of 12,650. It is the shipping and outfitting point for extensive fruit, dairying, and lumber industries. In 1849 the United States Government established the present Vancouver Barracks on a strip of land just east of the city commencing at the north bank of the Columbia River and extending northeasterly a mile and a half. It is about 3,500 feet wide and contains 640 acres. During the late war against Germany and Austria, Vancouver Barracks was a prominent factor as the headquarters of the Spruce Production Division, consisting of approximately 30,000 men, and from the great mill located at the post was produced as high as a million feet of spruce material per day. Outside of the Barracks many steel and wooden ships were constructed. A five-way shipyard is now standing idle, on the shore at the lower end of the City. At the close of the war the intensive military activities at Vancouver ceased, the large force employed was reduced, and there are now stationed at the Barracks about 400 men.

Steamboat on Way to Cascade Locks

Since the installation of the Fort by the United States such national characters as Generals Harney, Wood, Grant, Sheridan, McClellan, Pleasanton, Ord, Miles, Howard, Canby, Gibbon, Kantz, Funston, Greeley, and others, were stationed at Vancouver at various times.

Beginning on low ground but a few feet above the level of the Columbia River (a bench mark near the River reads 26 feet), the City of Vancouver is built on a gently rising slope to the north. In this direction run its principal business streets, Main and Washington. At the foot of the latter street the Inter-State bridge spans the Columbia River, here a mile and a quarter wide, including Hayden Island, a quarter-mile wide. In addition to being a highway bridge the structure carries a double track electric railway connecting with Portland, seven miles to the south. It is of the vertical-lift type. That is, the span for the passage of vessels instead of rotating horizontally is lifted vertically to any desired height to clear the type of watercraft seeking her way through.

In addition to the Columbia River, the electric railway and the paved north and south Pacific Highway, which crosses the River on the Inter-State bridge, the transportation facilities of Vancouver consist of the Spokane, Portland and Seattle, and the Northern Pacific railways—the former coming from the east and the latter from the north. These railway lines cross the River, to reach Portland, on a jointly-used bridge located some distance below the Inter-State bridge. Like all the bridges that span

Tower on Islet in Middle of River

the Columbia it is a steel structure, but has the distinction of being the longest—it is a mile and three-quarters long. Its draw span is of the old-fashioned "swing" type.

Having been at Portland several times I have some familiarity with it. It was off my line of travel, and I saw no necessity of making it a new visit and did not approach it nearer than Vancouver. The following succinct statement, prepared from information furnished by the Portland Chamber of Commerce, should be an ample description of that city:

"Portland, the 'Rose City,' is the metropolis of Oregon, and the fourth city in size on the Pacific Coast; population, 260,000; area, 66.36 square miles; has 445 square miles of hard-paved streets; 751 miles of sewers; 790 miles of city water mains, distributing water obtained from Mount Hood, 50 miles away; 187 miles of street railways; annual bank clearings, $1,528,445,024; total savings deposits, $39,953,918; annual building permits, $22,-734,875; foreign trade, $72,734,875; post-office receipts (1921), $2,062,608; taxable property (1921), $323,589,850; served by ten railroads and thirty-one established steamship lines, and is on the great Columbia River and Pacific Coast Highways; located on the Willamette River at the head of deep-sea navigation 110 miles from the sea; has the greatest fresh-water harbor in the world, with 27 miles of water front; is the leading wheat shipping port on the Pacific Ocean; and the greatest lumber manufacturing city in the world. The mean annual maximum and minimum temperatures are 61 and 45 degrees, and average precipitation 45 inches; has the same latitude as Halifax, and yet, 1,100 varieties of roses bloom out-of-doors ten months in the year, and the annual 'Rose Festival,' held in June, is a sight never to be forgotten."

CHAPTER XXVI

FROM VANCOUVER TO ASTORIA

Rain and a thick fog delayed my departure from Vancouver until 11 o'clock in the morning of November 3. Following the Washington shore, passing under the two bridges, the idle shipyard, a prominent object on the waterfront, was soon passed. Five miles below Vancouver brought me to the mouth of the Willamette River, a little over a quarter-mile wide. Twelve miles up the Willamette is the City of Portland.

At the confluence of the two rivers five snow-capped, sentinel peaks of the Cascade Range are visible. In the far northeast is Mount Tacoma-Ranier; also to the northeast, but much nearer, is Mount St. Helens; almost east of Mount St. Helens, is Mount Adams; slightly south of east is Mount Hood; and well to the southeast is Mount Jefferson.

The Government steamer George H. Mondell was anchored to the Washington shore directly across from the mouth of the Willamette, when I reached there. I had found the rise of the tide at Vancouver to be considerable—apparently about three feet. The experienced navigator takes into consideration the fluctuations of the tides, not only because they effect his progress but because the security of his boat when at anchor necessitates that she be placed far enough offshore to allow for low tide, and that she be secured with long enough line to float safely at high tide. I was anxious to get information about tidal conditions and therefore rowed alongside the Mondell and hailing a man aboard asked about the tides. The man was not posted and called the cook, who was no better equipped. Soon the whole crew was at the steamer's rail, much interested in my outfit. Eventually the captain was called who, in response to my inquiries, went to his cabin and got a tidebook and presented it to me. After that I had at my command the heights and hours of occurrence of high and low tides, at different places, to the end of my journey. That evening I reached, and made camp, on the Washington side at the mouth of Lake River.

After leaving the vicinity of Vancouver the River's shores are flat and low on both sides. On the Oregon side, extending from the Willamette River to the town of St. Helens, is Sauvie Island, seventeen miles long and five wide in the widest place. It is cut up by many sloughs and filled with numerous large lakes, the largest of which is Sturgeon Lake, fully four and a half-miles long and about two miles wide. Sauvie Island is formed by Multnomah Channel, which, leaving the Willamette below Portland, follows closely the eastern base of the Coast Range and joins the Columbia at St. Helens. On the Washington side a slough and lake condition exists similar to that on the opposite side except that there is no island. Three miles northwest of Vancouver is Vancouver Lake, about three miles long and two and a half miles wide. Adjoining it, separated by a low, narrow strip about a quarter-mile wide, and about half the area of the other, is Shillapoo Lake. These lakes are drained by Lake River at the mouth of which I camped. The low bottom land on the Washington side continues to just beyond Lewis River, which heading at Mount Adams flows westerly, past Mount St. Helens, joins the Columbia a quarter-mile below Lake River. The eastern base of the Coast Range, in Oregon, is at St. Helens, but in Washington is at Martin Bluff, several miles farther downstream. Low, flat shores occur in many places below St. Helens and Martin Bluff but they lack the lake feature which has been described, and their area is more limited than the bottom lands in the vicinity of Willamette River.

Above the mouth of the Willamette the only water craft I encountered were a few stern-wheel steamboats and an occasional ferry boat and rowboat. Below the Willamette a constant stream of vessels were plying both up and down the River—little motor boats, steamboats, Government transports, coastwise ships, and giant ocean steamers from foreign ports. There was everything but sailing ships. One steamboat was passed towing a great, cigar-shaped raft; the towing being done with a steel cable attached at one end to a tall mast on the deck of the steamboat and at the other end to the front of the raft.

Rain again held me over a day, and while waiting for fair weather I became acquainted with Captain J. W. West, Master of the tugboat Mildred "H,"

Steamship Senator on Way to Portland

who lived in a houseboat just within the mouth of Lake River. The Geological Survey maps terminate a short distance above the mouth of Lake River and I had no certain guide to the character of the Columbia below. I knew that the River became wider and the channel more open as the ocean was approached; and now that the inclement season of the year had arrived there was the likelihood that at any time a sudden squall would arise too violent to contend with in a small rowboat. Captain West was familiar with every detail of the Columbia to the sea, and when I asked him the safest way to navigate the section to Astoria he made for me a series of sketch maps, noting thereon the various islands, channels, towns, and other points of interest and control. He advised me to follow the Oregon shore back of the islands, and to, by all means, avoid the steamer channel which was plainly indicated by a line of black buoys on one side and a line of red buoys on the other.

Leaving the mouth of Lake River in the morning of November 5, I rowed across the Columbia to the town of St. Helens, which is located on a low bluff almost opposite to the mouth of Lewis River, and stopped there an hour to get an impression of the place. It is the largest town on the Columbia between Vancouver and Astoria and has a population of 2,200. Lumbering is the principal industry, and the most prominent object on the waterfront is a large sawmill. Near the town is a rock quarry. Some distance below on the shore stands an idle shipyard.

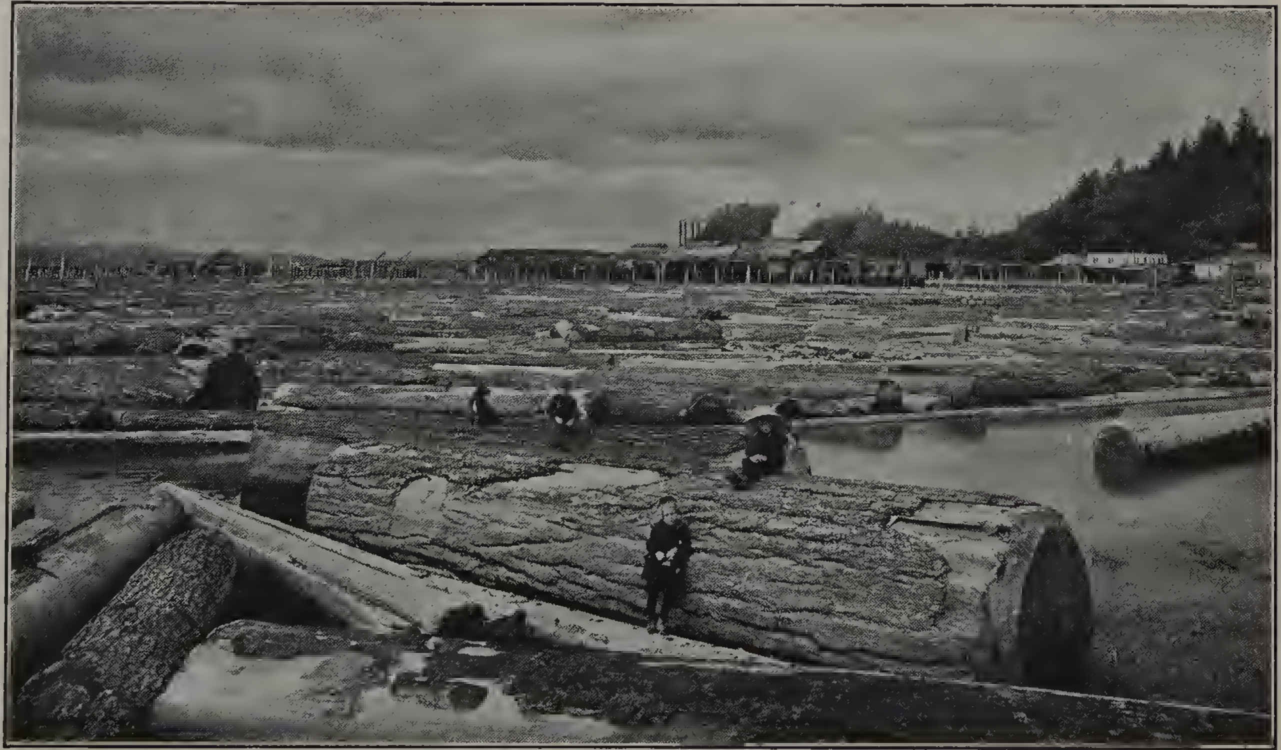


Photo. by Gifford

A Wilderness of Logs on the Lower Columbia

From St. Helens to the ocean the Columbia River passes through the Coast Range, a low range of mountains having comparatively gentle slopes heavily forested with great pine, spruce, and fir trees producing the finest lumber. All the way to Astoria the River's banks are lined, on both sides, with great log booms. These booms have a different construction from those I described on the upper Columbia near Golden. They are formed by driving a single line of wide-spaced piles alongshore from which are stretched small wire cables to a continuous, connected line of boom logs located well offshore. At the upper and lower extremities the boom logs are drawn together to pointed ends, forming an approximate oval, within which the logs are confined. The log booms of this section of the Columbia river are so numerous and lengthy that they are divided into stations, and each station is numbered. Confined within the booms I saw many logs of immense size, some of them one hundred feet long and eight feet in diameter.

On the evening of the 5th, I reached a point opposite to the town of Kalama, Washington, and as the Oregon shore presented an uninviting place to camp, I crossed over to the Washington side and found a good landing and anchoring place at the lower end of the town, and a grassy flat on which to set up the tent.

After getting established and preparing supper I walked to the business section of Kalama to gather information. I learned that the town had a population of 1,200, and depended chiefly on its one saw-

Mount Coffin

mill and three shingle mills. A part of its history is the fact that in 1870 the Northern Pacific Railway began its first work of construction in its immediate vicinity. The Northern Pacific now extends from Vancouver through Kalama to the Cowlitz River and then follows that stream northward and reaches Tacoma and Seattle. Kalama has another distinction as the place where the noted pioneer and author, Ezra Meeker, first settled in what is now the State of Washington. The Kalama River, which rises at Mount St. Helens, joins the Columbia River a short distance below the town of Kalama.

Leaving Kalama early the next morning I crossed over to and followed the Oregon shore. Below Brookfield the last rocky islet in the Columbia River was passed. This is Pillar Rock which stands alone in the water about a quarter-mile from the shore. Farther downstream Mt. Coffin, a huge, bare rock, rears itself on the Washington side, and is known to be another former Indian burial place.

Among the noticeable sights in the Columbia River below St. Helens are the many jetties that have been placed to keep the steamer channel within bounds. Most of these jetties project directly out from either shore, but below Mt. Coffin, one of considerable length extends upstream from the head of Walker Island, paralleling the River's course and then bends towards another jetty reaching out from the Oregon shore. A sandbar dividing the River into two channels makes this construction necessary to confine the steamer channel to the Washington side.

After passing Walker Island a vicious squall of

The Columbia River in the Coast Range

wind and rain drove me ashore just at the noon hour. I was close to land at the time and soon found friendly shelter among some trees, where with convenient wood a fire was made and a warm lunch prepared. In an hour the squall had passed and the sky had cleared.

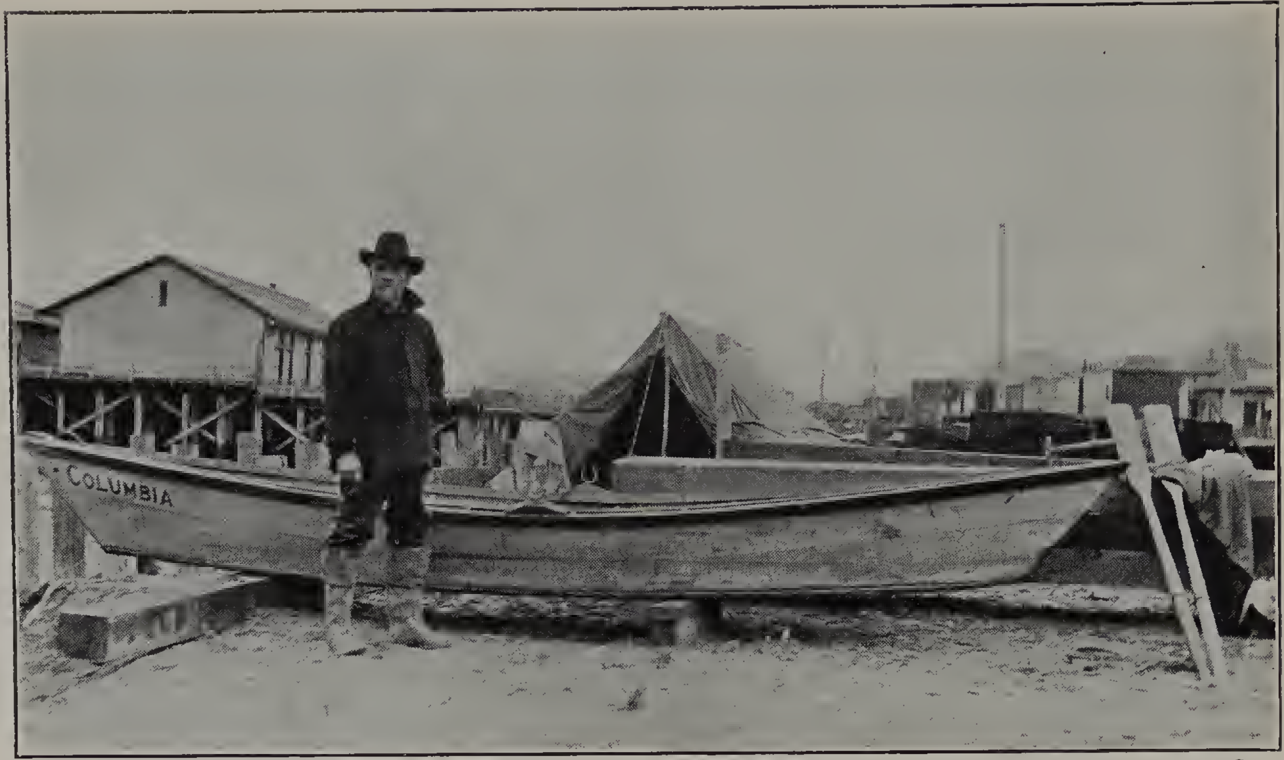
That night I reached Mayger, Oregon, a small place, and entered a narrow slough back of an island. Finding the shores low and muddy from overflow by the tides, and unfit to camp on, I was about nonplused when Mr. M. P. Strand, an elderly Norwegian, who occupied a houseboat near where I landed, offered me a shelter for the night and the privilege of cooking on his stove—an offer which was thankfully accepted. Mr. Strand insisted that I eat breakfast with him in the morning, and then led me to an orchard about a quarter-mile away on the hillside where we gathered a sack of apples. As I pushed my boat away from the shore the kind-hearted old gentleman threw aboard a side of salted salmon, the first fish I had since leaving British Columbia.

A few miles below Mayger the Clatskanie River, coming from the southeast, enters the Columbia. Across on the Washington shore is Eagle Cliff where, in 1866, Robert Hume established the first fish-packing business, which has since grown into the vast salmon canning industry of today. The Eagle Cliff cannery is still in operation.

The Columbia River had not materially increased in width since leaving Vancouver, but now, as the Clatskanie River is approached, it expands rapidly, and is filled with many large, low islands above Tongue Point, some of them mere tide-flats. There was nothing of particular interest in this section of the River, and following the sloughs along the Oregon shore I reached Wanna on November 7, and Knappa, thirteen miles from Astoria, on November 8.

Leaving Knappa on November 9, I reached Tongue Point, the eastern limit of Astoria, in a strong head wind, just before noon. This peculiar point is a rocky promontory, about 250 feet high, extending northward into the Columbia River, and united to the mainland by a low, narrow isthmus. Just off of Tongue Point is a large maelstrom, which is said to be dangerous at high tide. I had timed my arrival at low tide and although the maelstrom was quite fretful, by keeping close to the shore and just skirting the edge of the agitated water I was able to pass by without trouble. As I rounded the point the last thing that attracted my attention, directly over the broad River, which was visible eastward for miles, was Mount St. Helens, its white summit alone defined resting like a white cloud in the sky. After turning the point, following along an active waterfront lined with many vessels, in about three miles I reached the foot of Nineteenth Street and there set up my tent for the last time, in the railroad yard not far from the passenger depot.

I had come to the end of my rowboat journey lasting 150 days, and had fulfilled the prophecy made by Professor W. D. Lyman on page 273 of



—*Photo. by Cann*

THE LAST CAMP AT ASTORIA

his book entitled, *The Columbia River,* that, "It would be possible to descend almost the entire length of the River in a small boat."

The COLUMBIA, now at the goal visioned from Canal Flat was, with the aid of some railroad section men, withdrawn from the embrace of the stream she had battled so successfully, and whose name she had appropriated, and lifted over the sea-wall was safely set on timbers in front of the tent. The ten miles of River still remaining to the Pacific Ocean I expected to cover on board a southbound steamship. There was nothing to be gained by braving that section in a rowboat.

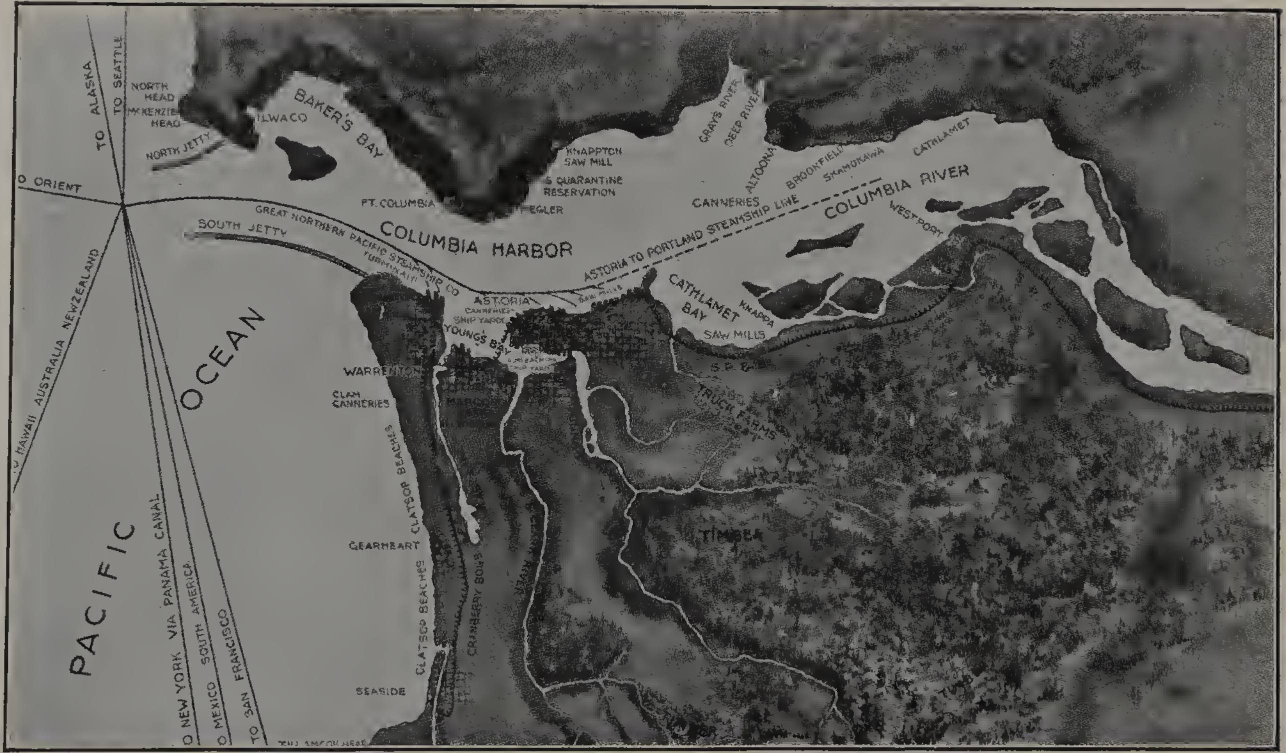
I was rough in appearance, and thin but rugged, when my exertions on the Columbia River ceased. My normal weight is 165 pounds—none of it due to fat. When I stepped on the scales at Astoria, a loss of 30 pounds was registered. Little of this was due to rowing, which does not fatigue me. I ascribe the great loss of weight to two reasons. The first was the constant, but unconscious, mental strain one is under when running rapids. The second, and greater reason, was the extreme efforts made in carrying heavy loads, at camping places, up and down the rocky, or crumbling, steep sides of the almost constant high benches for hundreds of miles. Many of these benches were one hundred, and sometimes two hundred, feet in height. At any rate the carrying of loads, especially up the inclines, was the most tiring work that I did.

The day following my arrival at Astoria I met an old acquaintance, J. P. Morse, a civil engineer I had known at San Francisco, California. Mr. Morse introduced me to James Bremner, the Mayor; E. L. Carlson, Chief of Police; R. A. McClanalhan, City Engineer; Wm. Gratke, Secretary Chamber of Commerce; and many other prominent citizens. Mr. Bremner promised to come to my camp and be photographed welcoming me to Astoria; but heavy rain clouds had gathered, and after that it rained incessantly during my stay of several days, and the picture was never taken.

As we already know, the City of Astoria is located at the site of Astor's old fur-trading post, long since demolished, but a replica of which now stands in the City Park. It extends westward from Tongue Point, with a water frontage of over seven and one-half miles to Young's Bay, into which flows northwardly from the Coast Range the waters of Young's, and Lewis and Clark rivers, the latter so named because the Lewis and Clark expedition wintered on its banks.

The business section of the city is mainly parallel to and near the waterfront, both streets and buildings being supported on underpinnings of piling, or on ground filled in to a level of but a few feet above the tides which have a mean average rise of 8 feet 5 inches. The choice residence section is on the sides and crest of the hills to the south. A belt line street railway serves the long, narrow strip below the base of the hills. The whole waterfront is lined with a multiplicity of docks, piers, grain elevators, canneries, mills and other industrial plants.

Astoria is the oldest and largest town on the



The Mouth of the Columbia River, and Columbia Harbor

Columbia River and has a population of 15,000. It claims to have the largest fresh water harbor in the world, and ships of all nations land at its docks. Besides water transportation, the Spokane, Portland and Seattle Railway and the Columbia State Highway reach it from Portland. It is the center of the greatest fishing and canning industry in the world. During the height of the fishing season, from the first of May to the latter part of August, from 3,000 to 4,000 men are engaged in catching fish, and 1,500 are employed in the canneries. The yearly value of the pack is estimated to be $7,500,000.

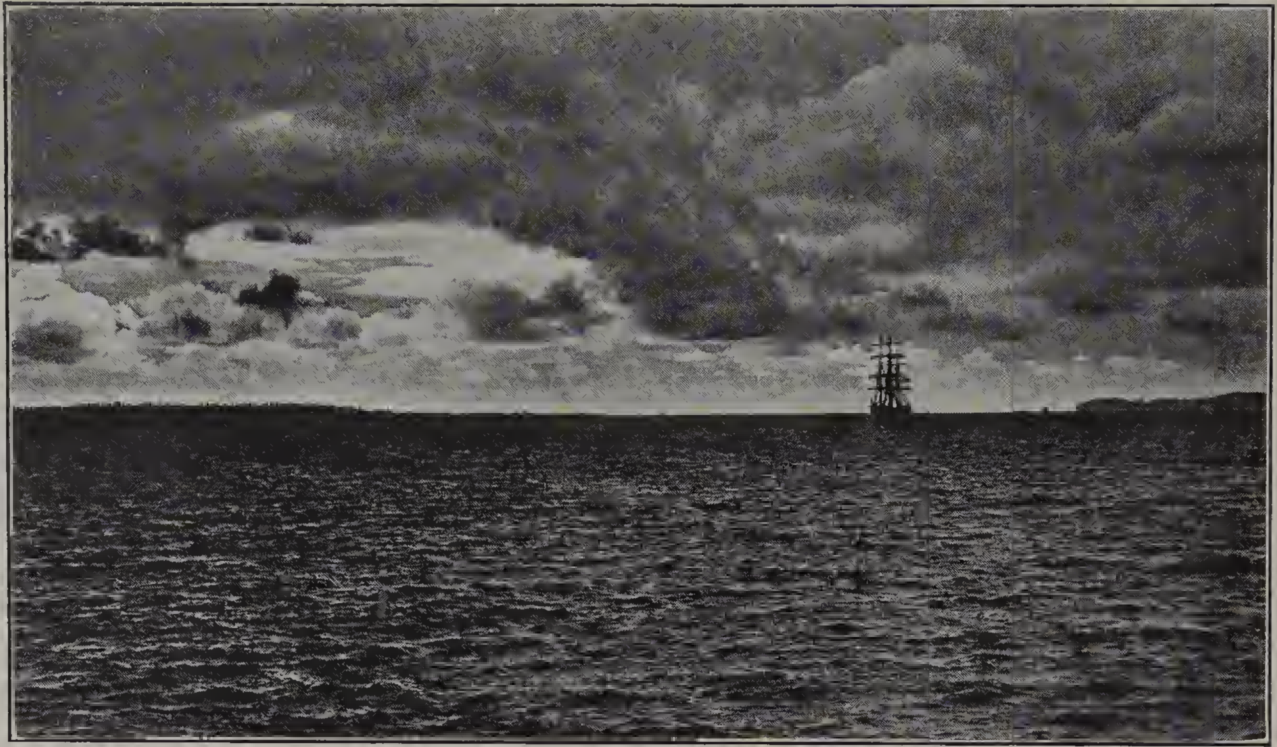
Astoria is also the distributing point of a great lumber business. Its tributary territory produces a daily output of 1,100,000 feet of lumber, the Hammond Lumber Company, located at Astoria, alone producing 450,000 feet. During the late war in Europe the Air Production Board had six Spruce Divisions operating in Clatsop County, of which Astoria is the county seat, and approximately 100,000,000 feet of spruce were reduced to lumber for the manufacture of airplanes. Three shipyards are located on Young's Bay; and there also are the Astoria Marine Iron Works, a great industrial plant.

Astoria is the natural center of distribution for the farming districts of Clatsop County, fruit raising, truck gardening and dairying being the principal farming operations. That part of the State of Washington directly across the Columbia River is also a factor in the business and social life of Astoria.

Southwest of the city are the oceanside resorts at Clatsop Beach located at Gearhart and Seaside, about twelve and eighteen miles away and reached by rail or highway.

As had been planned, I made the ten mile trip to the mouth of the Columbia River on the ocean-going steamer *Senator,* which took me to Wilmington, the seaport of Los Angeles, California. At the mouth of the River, where the dangerous bar existed that was a menace to navigation, the National Government now maintains two channels, each a half-mile wide, the entrance to the harbor having a depth of water, at mean low tide, of 42 feet. Two jetties now extend into the ocean from the shore, the shorter one from Cape Disappointment on the north is about three miles long; and the longer, from Point Adams on the south, has a length of seven miles. Several millions of dollars have already been expended on new work, renewals, and dredging—the latter expense being constant to keep an open channel. Three forts guard the entrance. On the Oregon side is Fort Stevens at Point Adams; on the Washington side are Forts Canby and Columbia, the first being at Cape Disappointment, and the other controlling the Narrows a few miles above and more nearly opposite to Fort Stevens.

Below Tongue Point and above the jetties is known as Columbia Harbor, and several small towns have been established on its borders. On the Oregon side is Warrenton, across Young's Bay from Astoria; on the Washington side are Knappton, Megler, McGowan, and Ilwasco—also the U. S. Quarantine Reservation. On account of its prox-



Entrance to Columbia River

imity to the ocean in Columbia Harbor the level of the River is not affected by freshets from upstream, and the only variation that has to be recognized is the bi-diurnal rise and fall of the tides.

NOTE: The business section of Astoria, which I knew so well in November, 1921, will be seen in the same aspect no more. On December 7, 1922, a disastrous fire broke out, which, eating its way into the piling supporting the streets and buildings, became uncontrollable and practically wiped out the major part of the choicest business district, entailing an estimated loss of $15,000,000. Occurring as it did in the inclement winter season, the disaster is especially deplorable. However, I hope to see Astoria, like San Francisco— where I lived during the earthquake and fire of 1906 and the reconstruction which followed them — rise phoenix-like, better and grander than ever.

CHAPTER XXVII

FROM THE SADDLE MOUNTAINS TO THE PACIFIC OCEAN: *The Basalt Barriers, Topography, Erosion, Character of River, Cultivated Areas, Irrigation, Rainfall, Forests, Columbia River Highway*

I believe that the reader who has carefully followed my course has, at least a fairly accurate knowledge of the character of the Columbia River and the valley through which it flows from Canal Flat to Pasco; but there is still some description necessary to complete the picture to Astoria.

To get a thorough conception of the lower Columbia and its valley, as they appear today, it will be necessary to go back to a point above the Saddle Mountains, which are above Priest Rapids. With a good topographic map in hand it will be seen that the River in order to reach the Pacific Ocean had to find its way through three great barriers which were directly athwart its pathway—these do not include the Coast Range, which to my mind had nothing to do with the problem.

These barriers were at one time dams that backed the water behind them into great lakes with their surfaces many hundred feet above the present river level. The first of these were the Saddle Mountains; the second were where the Horse Heaven Hills on the west meet the hills on the south of the

Walla Walla River; and the third was the Cascade Range.

At the Saddle Mountains the hills adjacent to the River rise practically 1,000 feet above it, and through them a gap a mile wide, with sloping sides, has been made, of which the Columbia occupies but about 800 feet. A natural cleft may have existed here through which the waters of the lake found an outlet; but from the greater elevation of the mountains farther away, and the trend of the slopes, the indications are that a narrow neck and a depression between the summits had formed at this particular location, and being the lowest place, it was here that the pent-up water behind the barrier found a way to escape, the channel being gradually deepened by erosion.

At the Walla Walla River the hills on both sides of the Columbia form walls about 750 feet high, with a further gradual rise beyond that height. This indicates a depression somewhat similar to that at the Saddle Mountains but with a much greater distance across the neck. In this depression erosion has formed a gap from one-half to a mile wide with the River occupying most of the contracted portion. One would naturally expect to find rapids in this closely hemmed-in section, which extends for nine miles, but it is a peculiar feature of the Columbia that there are no obstructions in the channel or dangerous currents until the low shores of the Umatilla Plains are reached many miles below.

At the Cascade Range the lateral pressure that thrust up Mount Adams on the north and Mount

Hood on the south to their present height left between them a sag, or pass. Mount Adams has a height of 12,470 feet, and Mount Hood 11,225 feet. The backbone of the Cascade Range is not on a direct line between these two mountains but several miles to the west at the rapids of the Lower Cascades. Here the normal crest of the Range, if joined across where the break now exists, is about 2,500 feet above sea level, with a rapid increase in elevation, both ways from the River as the distance therefrom increases. There is evidence of deep erosion directly between the two mountain peaks, but the higher barrier to be surmounted must have been at the Lower Cascades, and at that point erosion commenced and did its greatest work. A singular condition exists, however, at the backbone of the Cascade Range, where one would expect, if anywhere, a great, narrow gorge between high, frowning cliffs. On the contrary while the steep, high slopes are near the River on the Oregon side the gap from their base to rising ground in Washington is one and one-third miles wide, another mile is required to attain a height of 500 feet, and it is two miles and one-quarter more before the 2,500 feet elevation is gained at Table Mountain which is supposed to have been the abutment of the Bridge of the Gods. The full distance across from the 2,500 contour on the south to the same contour on the north is four and one-half miles; indicating an immense width and depth of erosion, and the possibility of some other factor such as the splitting asunder of the mountain chain by vertical cleavage across its axis. It is true that the Columbia is but a quarter-mile wide from the Upper to the Lower Cascades, but this width is between low walls, of but a few feet in height, scoured in the basalt of the River's bed, and the true walls are the mountain sides exterior to the low ones limiting the channel's width.

Above Table Mountain is an area about two miles wide and five miles long rising in a series of terraces to the 500 contour. On these terraces are about thirty small lakes, evidently all that is left of a former great lake.

The situation that was faced by the Columbia River through the Coast Range is not analagous to what it overcame at the three barriers above. Below the Sandy River erosion played little part in making a channel. Some great earth convulsion must have split asunder the hills from Tongue Point to the Pacific Ocean and the section westward of the Cascade Range became a great estuary of the sea, which has been filled in to its present condition of marsh and bottom land by detritus brought down and deposited by the Sandy, Willamette, and smaller rivers, and the Columbia itself; the Columbia only maintaining sufficient width and depth of channel to fulfil its mission of delivering up to the sea the accumulated water gathered along its course.

There is little doubt that the Columbia existed as a river long prior to the great lava flow that covered the surface of the country with a blanket of basalt, and which was of such a comparatively recent date that its occurrence has been handed down among the Indian tribes as one of their legends.

This being so makes it certain that the Columbia cut out the channel it now follows antecedent to the lava flow; and it must also have continued to exist as a river (although possibly in a superheated condition) during the time of volcanic activity, with much of the liquefied rock finding a way down the channel, partly filling it, as is pronounceably noticeable in many places, especially at Celilo Falls and the Grand Dalles; a conclusion confirmed by the fact that much of the waterway is a defined trench in the hard, igneous formation. Exposure of the material underlying the basalt, it is said, can be seen in some localities. I noticed sandstone just above Vancouver, at St. Helens, and Mount Coffin, and probably overlooked it in other places. It is claimed that sea-coral has been found at the Lower Cascades—a point the tides now reach—giving proof that an arm of the estuary at one time extended that far inland.

The deductions made in regard to the depth of erosion at the three barriers described are based on elevations as they now exist. If the River's channel was excavated antecedent to the lava flow, then, the thickness of the basalt blanket at the respective places represents a diminution of the depth of erosion by the amount of that material piled upon the original surface. Consequently, erosion by the flowing waters of the Columbia has not been as great as it seems; and the wearing away of the basalt at the high elevations must have been due to weathering or other agencies than the River alone.

At Pasco the distance across the Columbia to the Kennewick shore is about a half mile, but below there to the Upper Cascades the width is very variable—often a mile or more, where there are islands. Above the White Bluffs islands are of infrequent occurrence, but from there they are numerous all the way to Tongue Point, varying in character from little, rocky islets to great blocks of basalt, large, level areas well above high water, marshy slough and lake-filled expanses, and low tide-flats. The contraction of the River through the backbone of the Cascade Range to a quarter-mile has already been noted, but from a point about a mile below the town of Bonneville, Oregon, which is at the Lower Cascades, there is a continual, but irregular, increase in width to Cathlamet Bay, just above Tongue Point, where the distance from the Oregon to the Washington shore is ten miles. At Astoria this contracts to seven miles, and at the Narrows, just below Astoria, to five miles, expanding again to seven miles where the River and Ocean meet, broken, however, by a considerable island at the mouth of Baker's Bay, which is on the Washington side just behind Cape Disappointment.

As we travel down the surface of the River below Pasco we note the character of the land on either side. Until the hills at the Walla Walla River are approached, the shores are low and flat, being somewhat higher on the right, where they are the extension of the Kennewick district, and are gradually pinched off to a point by the encroaching Horse Heaven Hills. On the left is a great level plain—the Plains of the Columbia—extending eastward and enclosed by the Snake River and the Blue Mountains. This is a great wheat-growing section, of which the City of Walla Walla, about thirty miles east of the Columbia River, and having a population of 16,000, is the capital.

Entering the hills at the mouth of the Walla Walla we notice that their comparatively level summits have been planted to grain, of which the yellow stubble is all that now remains; and that what low, flat ground there is at the base of the hills is too small in area for grain culture. Leaving the hills, we reach the Umatilla Plains, another grain section with an occasional small orchard. Below that the land rises into low, cultivated plateaus, and then becomes gradually ascending, broken, rounded foothills which merge into the rugged, forested slopes of the Cascade Mountains, which, culminating near Bonneville, then descend and terminate at the Sandy River. The low, alluvial valley then follows, and finally the tree-clad and generally gentler slopes of the Coast Range are penetrated and the ocean reached.

The land has been constantly somewhat higher on the north than on the south since the State of Oregon is entered, and while the low plateaus cease about at the town of Arlington, Oregon, they have already changed into hills about twelve miles farther upstream on the Washington side. From these points the shores of the Columbia become frequently rough and broken, often high and precipitous, all the way to Sandy River. The structure of the hills is exposed almost everywhere, and we notice that they rise in terraces, somewhat inclined to the horizontal, and that the number of these terraces is almost invariably three. Many of the spurs of the hills reach the River in a succession of narrow, rocky points, necessitating short tunnels on the railways paralleling the stream. At one place on the North Bank Road I counted five tunnels in a half mile. The ridges frequently terminate in steep, frowning cliffs many hundreds of feet high, which either rise directly from the water's edge or are back short distances from the shore. In most instances the railways have found ample ground for their roadbeds below these cliffs, but frequently tunneling had to be resorted to.

In spite of the rugged nature of the country between Arlington and the Sandy River there is much tillable land. There are many nooks in the mountains and occasional places on the shores where farming is done, and the many tributary rivers have their own fertile valleys where crops are raised and dairying is carried on. Below the Sandy River conditions are more favorable than they are above, both for the raising and disposal of farm products.

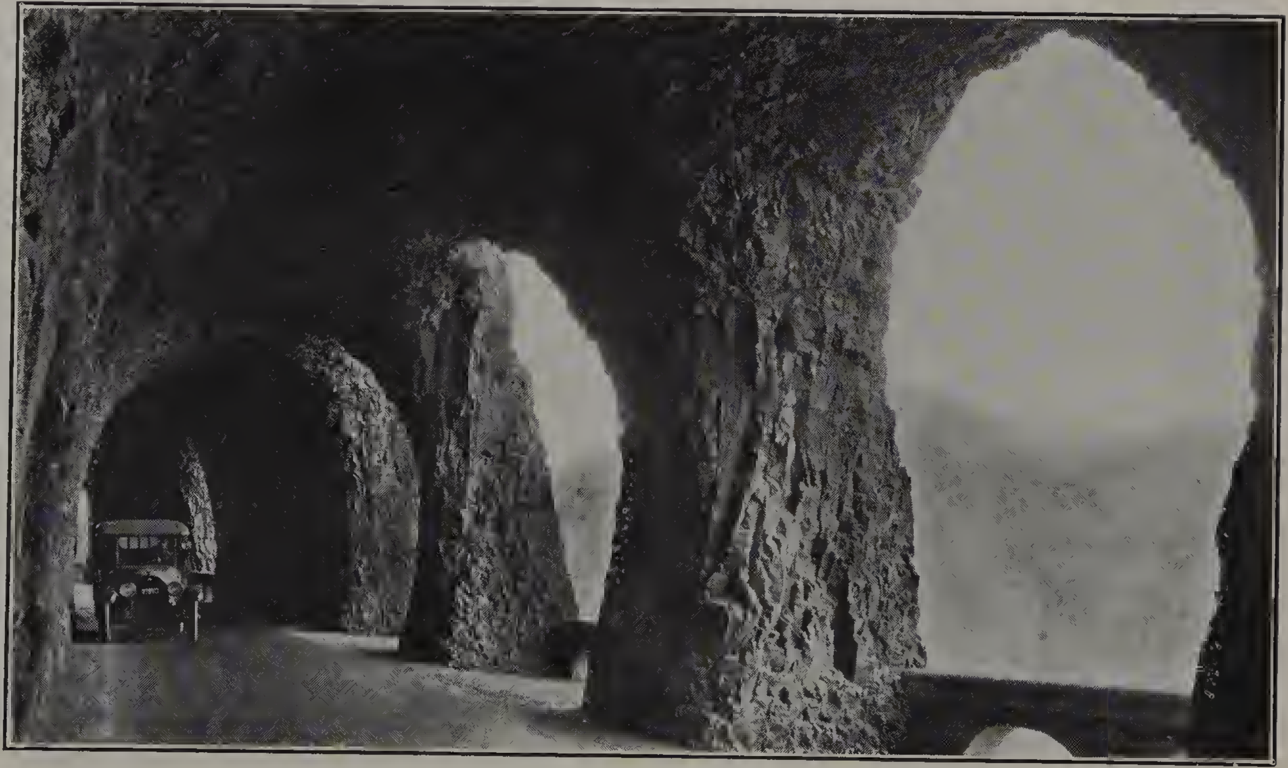
From Snake River to The Dalles City is known as the semi-arid district. The average total annual precipitation at the mouth of Snake River is 9 inches, which increases to 15 inches at The Dalles City. For other crops than grain this rainfall is supplemented by irrigation with water from available sources in the hills. West of The Dalles City the increase in rainfall is rapid. At Hood River it is 36 inches, between the two mountain ranges 40 inches, and in the vicinity of Astoria from 75 to 100 inches.

The frequent current-operated ferries and private pumping plants which add so much to the appearance and life of the Columbia below the Boundary are no longer seen below Pasco. The River had become too wide for the satisfactory operation of boats from a stretched-across cable, and power-propelled boats are the only kind practicable, and are in use at some of the towns. I counted seven of these, of which the last was at Kalama. The only pumping plants utilizing the River's water are municipal ones in the semi-arid section. After the Cascade Range is entered an abundance of water, for all purposes, is furnished by mountain streams.

The Columbia River Highway has been briefly referred to. The Oregonians claim it to be "America's Greatest Highway," and is certainly an object of admiration, and also of scenic interest, especially as viewed from the surface of the Columbia, whose shore it skirts on the south, from Umatilla to Rooster Rock and also as Astoria is approached. One sees it climbing an ascent on one side of a ridge and descending on the other, clinging to the face of cliffs hundreds of feet above their base, winding its way in loops to the crest of hills, passing through virgin forests, boring its way with tunnels, crossing the rivers and ravines on great masonry bridges and viaducts, and guarded from the danger of dashing off its sides by substantial parapet walls of concrete.

The following description is taken almost entirely from *The Roadrunner,* a magazine published by the Standard Oil Company:

> "The Columbia River Highway is 340 miles long, extending from Astoria to Pendleton, Oregon. It con-



—*Photo. by Prentiss*

MITCHELL POINT TUNNEL

> sists of 200 miles of asphaltic concrete paving from Astoria to The Dalles, and 140 miles of gravel and crushed rock surfacing from The Dalles to Pendleton. The construction of some of the paved parts of the highway was probably the most difficult highway construction ever undertaken in the United States. For many miles it was necessary to construct the roadbed upon the rugged, nearly vertical walls of the Columbia River Gorge, necessitating that the road be carved out of solid rock. In many places rock bluffs overhang the finished highway, and at six places tunneling was done through rock points which could not otherwise be passed. At Mitchell Point the tunnel is in the form of an arcade with four openings, or windows, overlooking the Columbia River. For almost its entire length the highway presents a series of bridges, rock walls, overhanging bluffs, and tunnels. It has a width of 24 feet, and has no curve with a radius shorter than one hundred feet, or gradient steeper than five per cent. It intersects with the Pacific Coast Highway at Portland."

Little can be said about the minerals of the country contiguous to the lower Columbia River. About the only rock one sees is basalt, and that carries no ores of any kind; and there are no auriferous gravels. I was unable to learn of any productive mines either on the Washington or Oregon side, but was informed that copper and lead had been found near Umatilla, and that there is iron ore in the Cascade Range in Multnomah County, and near St. Helens. Indications of mineral oil are very pronounced near Astoria and when I was there a well was being drilled but was not yet on production.

CHAPTER XXVIII

The Columbia River Salmon

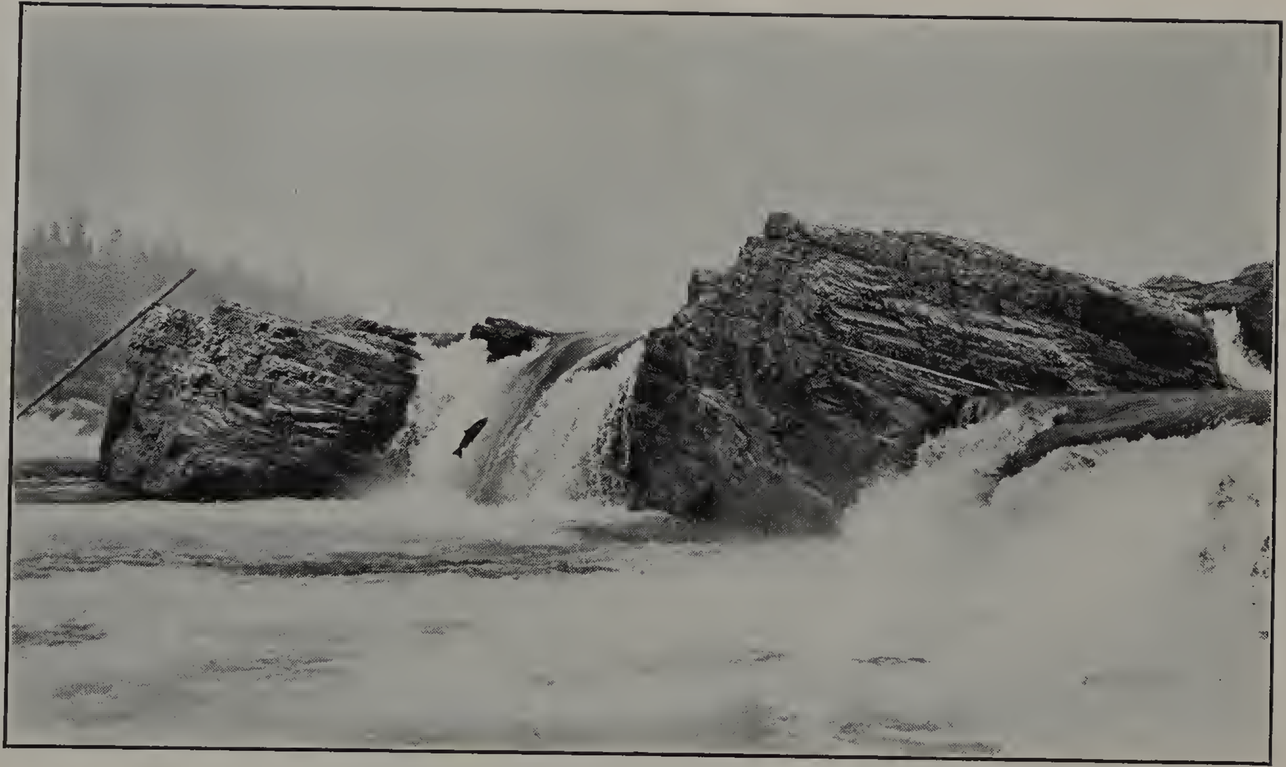
A description of the Columbia River would not be complete without something more than a reference to that most highly-prized of all fish, the *Salmon;* and which, more than any other of its products, or its scenic attractions, has given the River a world-wide reputation.

I saw not a single salmon on my trip down the River, because, by the time the fishing-grounds were reached the fishing season was over. The "run" had been unusually light, had ended early, and the fishermen and cannery employees I talked with complained about the little money they had been able to earn, and expected to be heavily in debt before the winter was over.

However, I am familiar with the North Pacific Coast salmon, not only as they are found in the Sacramento and Feather rivers of California, but in the rivers of Alaska and Western British Columbia. In the latter two countries I have seen them in great hordes, not only wending their way to the spawning beds, but being taken by fishermen both in salt and fresh water. I have watched them while spawning, have shot them with rifle and pistol, killed them with clubs, and hooked them with a gaff. I have lived on them for months, and have visited the canneries and observed the operations of packing. In view of personal experience with the fish in other waters than the Columbia, I feel qualified to give a general description of them, and of their habits, and the methods by which they are caught and packed for the market.

The North Pacific Coast salmon are of five species: the chinook, or king salmon, which weigh on an average about 22 pounds, but occasionally reaching the great weight of 70 to 80 pounds; the red, blueback, or sockeye, weighing from 5 to 8 pounds; the silver, or coho, weighing from 3 to 8 pounds; the dog, weighing about 9 pounds; and the humpback, or pink, weighing from 3 to 6 pounds.

Salmon attain their full development in salt water, and when the spawning "urge" is on seek fresh water streams in which to perpetuate their species. Salmon will take the hook in the sea but after entering fresh water they feed no more, eventually ending their lives by starvation. Having reached the flowing water of a stream they never turn back, but ascend in great hordes, often leaping cascades 10 to 12 feet in height, not easily discouraged by such obstacles, which many fail to overcome and die in the attempt. The object of their migration is to reach clear, shallow, running water, with gravel beds favorable to the deposition of their eggs. The stream selected may be anywhere from a foot to four feet deep, and in these the fish gather in great numbers, so dense in places as to be almost a solid mass; in spite of which they are rarely quiet, but are in constant commotion, either engaged in the activities of spawning or fighting one another. While spawning they



—Photo. by Merigeau

SALMON LEAPING CASCADES OF EAST CHANNEL, KETTLE FALLS usually pair off, and with snout and tail excavate a broad, shallow trench in the bed of the stream in which the female deposits her eggs, which the male covers with milt—a white, milky-looking substance. The eggs are round, about a quarter-inch in diameter, are soft but have a tough integument, and being heavier than water they sink to the bottom, where they are covered by the pair with stones and gravel. The young, which are called "parr," are hatched in the course of four to six months, and at first are nourished from a sac suspended from the belly and containing the yolk of the egg, the sac being finally absorbed. After attaining a length of several inches the parr depart leisurely downstream to the sea, reaching it the second spring, and they are then known as "smolt." In salt water they develop rapidly in size, become silvery in color, and are called "grilse," and when between two and three years old reach the stage when they are "salmon." Having come to the right period of development, like their progenitors, the immutable law of their natures compels them to seek spawning grounds at which to perform their duty of reproduction.

When the salmon start their inland journey, they are symmetrical in shape, are covered with scales, and are a bright silvery color. After reaching their destination, a marked change takes place in their appearance, more pronounced in the male than in the female; although due to lack of food and their exertions they both become thin to the point of emaciation. They lose their scales, the female becomes slimy, and dull and blotchy in color, while the color of the male changes to various shades of black or red, the sockeye becoming a bright red. The lower jaw of the male elongates until it is projecting, both jaws become hooked, the front teeth get very long and canine-like, sometimes so much so that the mouth cannot be closed and producing a wolfish appearance. As the body thins, the shoulders thicken into a pronounced hump, which is more noticeable in the pink salmon than in any other.

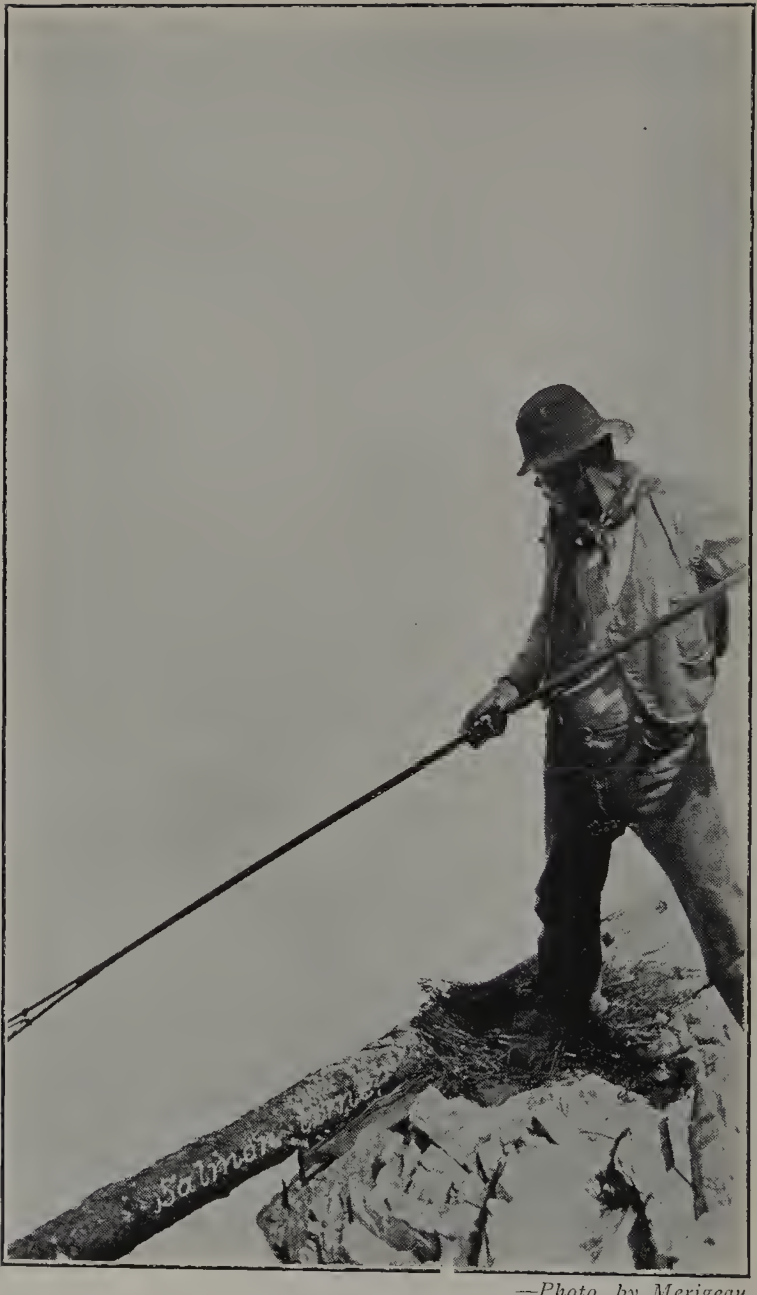
After spawning the salmon become known as "kelts," many of them are blind, and all of them are covered with sores due to striking against rocks and fighting. Their movements are languid and they soon die of exhaustion; and if their bodies are then dissected they will be found to be void of eggs or milt. At the end of autumn the shores at the spawning beds become veritable cemeteries of fish-bones, which disintegrate rapidly and are practically all swept away by high water in the spring.

It is claimed that salmon spawn at the age of four years, and that they almost invariably come to the place of their birth for the purpose. Little is known about their habits or where they go in the ocean. But it is probable that they do not depart far from the mouth of the river in which they are hatched, and that when ready to spawn their native stream is naturally the one nearest at hand. Although four years is the age at which salmon become fecund, there is a "run" every year, alternate hordes of them utilizing the same stream.

All five species of the North Pacific Coast salmon have been found in the Columbia River, but the king, or royal chinook, is the most prized and staple fish taken in its waters, not only on account of its size but on account of the quality of its flesh. When the upper Columbia first became known to white men, salmon ascended as far as Windermere Lake, for the ancient spawning beds were pointed out to me at Athalmer, with the statement that they are frequented no more. Salmon are now rarely seen above Kettle Falls, but the early spring run is still known to ascend Snake River to Salmon River in the Sawtooth Mountains, a thousand miles from the Pacific Ocean.

The salmon are followed from the sea to the spawning beds by dolly-varden trout, or char, a member of the salmon family, but of different habits from the true salmon, and who do not die after spawning. The dolly-varden I have seen and caught weighed from 1 to 3 pounds, but it is claimed that individuals, in some localities, attain a weight of 12 pounds. These trout arrange themselves in line immediately behind the spawning salmon and feed on such stray eggs as the current carries to them. The salmon seem to pay no attention to the trout, nor do I believe the latter attempt to reach the covered eggs but content themselves with those that the constant agitation of the water causes to float their way. The spawning season at an end, with no more eggs to feed on, sleek and plump in appearance, the dolly-varden wend their way back to salt water.

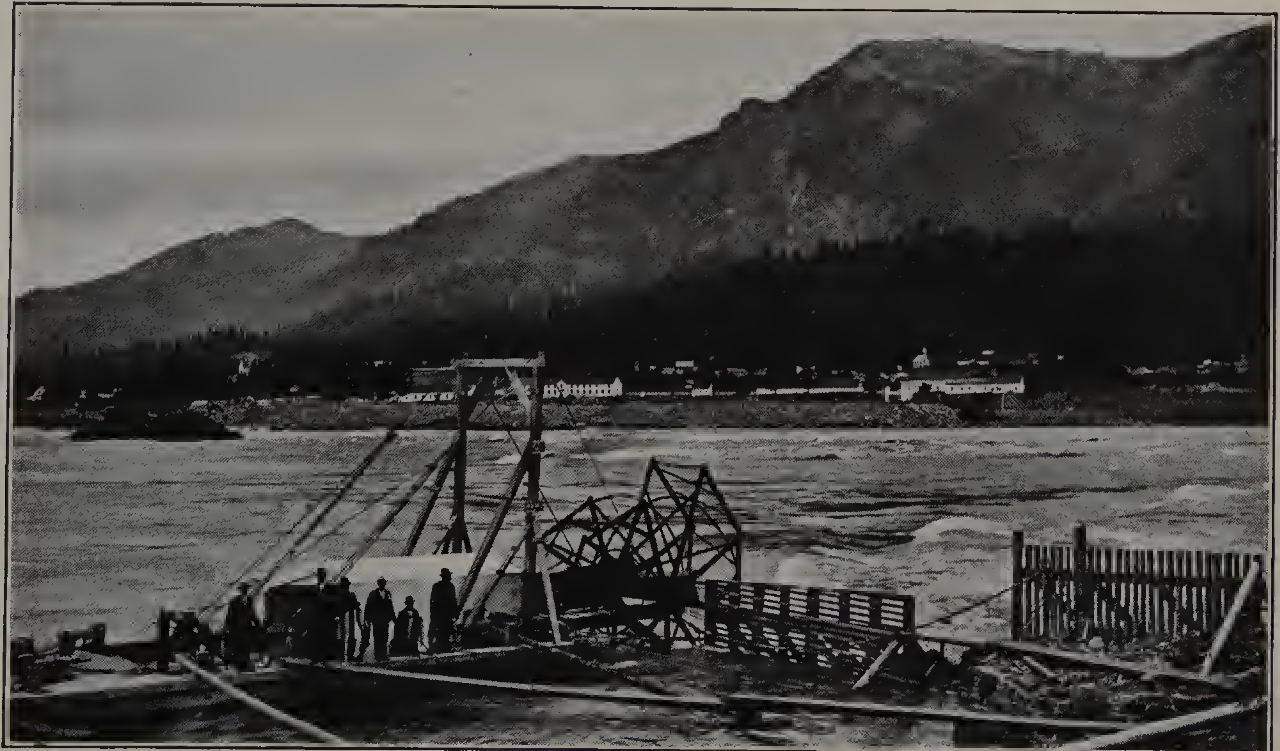
My first introduction to commercialized fishing on the Columbia River was at Celilo Falls, and, thereafter, the contrivances used for taking the fish



—*Photo. by Merigeau*

INDIAN SPEARING SALMON

and the canneries for packing them were constantly in evidence all the way to Astoria. These contrivances are varied. While the Indians have adopted some of the white men's methods, the two-pronged spear at the end of a long handle is still used by them. Salmon for commercial use are not taken at the spawning beds, where they soon become defective, but while they are still fresh and unmarred as they wend their way upriver to the beds. In that part of a river where there is a strong current, the use of fish-wheels is a favorite method of trapping the fish who, as they breast the current, almost invariably follow the shore, where the resistance is lessened. Fish-wheels are of two kinds. They are either permanent structures established at the shore, or they are erected on scows and are movable from place to place. Both kinds are similar in construction and operation. They consist of a framework supporting wheels from 20 to 40 feet in diameter and from 6 to 8 feet wide, provided with scoop-shaped, wire-meshed arms that revolve with the current, in which they are placed far enough offshore to be operated. Intercepting the pathway of the fish as they travel upstream and diverting them to the wheel are "leads" made of a line of wire-screened piling, and as the wheels revolve they scoop up the fish and dump them above upon an inclined platform from which they slide into the scow, or into a pond, from which they are withdrawn as wanted. Immense numbers of salmon are taken by fish-wheels. Instances are known where a single wheel has scooped up eight tons in one day's operation.



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FISHWHEEL AND VILLAGE OF CASCADE LOCKS

Where fish-wheels are ineffective because of lack of current, salmon are ensnared in fish-traps. These consist of a rectangular, net-lined enclosure of driven piling, called "the pot," placed a short distance offshore, into which an intercepting wing, or wings, lead the fish through a funnel-shaped entrance out of the small end of which the entrapped creatures cannot find egress. Some fish-traps are made with two enclosures. A single lead extends into the first, which on account of its shape is called "the heart"; the point of the heart tapers into the second, where the fish are impounded, and is known as "the pound." Fish-traps are often of large size, capable of holding many thousands in the pot, or pound, where they remain alive until wanted for the canneries.

There are several other methods of taking salmon. One is with gill-nets stretched from the shore in which the fish become entangled by their gills. On the tide-flats seining is done with long nets laid out across the channel. The net is made fast at one end, the outer, unsecured end is towed to form a purse and is then dragged ashore by horses. This is called purse-seining. Outside the entrance to a river, where salmon will still take the hook, trollers in their fishing boats get the first chance at the silvery horde; there also, deep sea purse-seine boats operate; and fish-traps are frequently placed alongshore in salt water. I have also seen salmon snagged below the mouth of small streams with a many-hooked, weighted line, several hundred feet long, which is cast from a distance into the swarming mass and almost invariably lodges in the flesh of some unfortunate.

Some of the salmon are, of course, eaten fresh, others are salted down, and still others are smoked, but most of them are preserved by packing in tin cans at packing-houses called "canneries." There are 21 canneries distributed along the Columbia River, the majority of which are located at Astoria. The amount of the annual pack is about 600,000 cases, having a value of about $7,500,000.

Many of the canneries have their own traps, but all buy of independent fishermen. To further promote the salmon packing industry the states of Washington and Oregon operate a number of fish hatcheries, maintained by licenses issued to the canneries and fishermen. Millions of salmon are hatched each year and are released into fresh water from which they go to the ocean to develop, and in due time seek their natural spawning beds.

Besides Americans, a great number of foreigners follow the occupation of fishing, and especially at Astoria many Finns, Norwegians, Russians, Italians, Sicilians, Greeks, and a sprinkling of other nationalities are fishermen, and live mainly in the east end of the city.

The salmon run on the Columbia River usually starts in February or March and extends to August or November; but, to prevent annihilation, the season for catching them is not open until May 1, thus allowing the early comers unhindered passage to the upper reaches of the rivers to spawn.

Much of the work at the canneries, such as cleaning, cutting up, topping, testing, boiling, and labeling is done by machinery and is largely automatic. Most of the necessary labor at the Columbian canneries is performed by Chinese, Japanese and Filipinos, and is contracted ahead for the season. In Alaska, many of the cannery employees are Indians.

CHAPTER XXIX

Final Review and Conclusions

In exploiting the scenic features of the Columbia River an impression is given to many unfamiliar with it that it abounds with great cañons. That is not true, for not even excepting the passageway through the Cascade Range, where there is much that is interesting and impressive, there is not a single great cañon on the whole length of the Columbia. There are cañons, it is true, but compared with those of the Arkansas, Colorado, Fraser, and other noted rivers, they sink into insignificance.

According to the Encyclopedia Britannica, a cañon is, "a type of valley with huge, precipitous sides." Webster's definition is, "a deep gorge, ravine, or gulch between high and steep banks"; a gorge is "a defile between mountains"; and a defile is "a narrow pass between hills." The general conception of a cañon is a gloomy gorge bounded, on both sides, by high, practically perpendicular walls. These requirements are measured up to on the Columbia in only a minor degree.

The places where the River is encañoned are: at Redgrave, between Donald and Beavermouth; at the head of Surprise Rapids, where for a short distance the walls are fifty feet high; around the Big Bend to near Revelstoke is popularly known as a cañon, but is more in the nature of a deep, V-shaped trough with more or less sloping sides heavily forested to the high-water line; the Little Dalles is the first in the United States, a pronounced rugged gorge; then comes Hell Gate; then Nespelem Cañon, which includes Box Cañon; there are many high bluffs below Nespelem Cañon but no enclosing walls until the Walla Walla River is reached; then come the bluffs both above and below John Day River. At the last three places the distance across the gaps from top to top of slopes is from a mile to a mile and one-half. The channel the River has carved through the foothills and mountains of the Cascade Range is known as the "Columbia Gorge," probably as appropriate a name as can be given it, as the troughs through the Grand Dalles and Cascade Rapids are narrow, low-walled, but true gorges in the hard, basalt bedrock of the stream, enclosed by the wider-spaced mountain slopes.

As I glided down the surface of the Columbia below the Umatilla Plains, the impression the valley through the foothills and mountains made upon me was of an open expanse between broken hills and mountain slopes guarded here and there by frequent, frowning outposts of towering, perpendicular cliffs, impressive in appearance but rarely of any great length. This is the thought that came to me as the panorama presented itself to my view—How could even so great a river as the Columbia carve its way through a mighty mountain chain like the Cascades without leaving as an evidence of its handiwork a more continuous walled cañon or gorge? The condition cannot be accounted for by contemporaneous upthrust and erosion alone, but must be due to the fact that the sentinel cliffs now standing erect were harder than other places, were subject only to the wearing effect of the water of the Columbia, and not situated so as to be softened by flowing water from the hillsides; while other places, now lying at an angle, were made so by the disintegrating action of side streams, and were carried by water, or gravitated, to their present inclined positions. The diversity of great, bare, frowning cliffs with sloping, timbered ground between in no way detracts from the scenic features of the passage through the Cascade Range but rather adds to them by a break in the monotony and a relief to the eye.

To those who may be disappointed in the magnitude of the cañons of the Columbia, I will say that cañons to satisfy the most exacting are easily accessible on many of its tributary rivers. In British Columbia they will be found on the Kicking Horse, Beaver, and Illecilliwaet; in the United States on the Chelan, John Day, and Deschutes. In the Cascade Mountains many of the smaller streams have their deep clefts and gorges.

A very noticeable feature on the shore line of the Columbia, which makes itself manifest as soon as high water lowers, is the sloping, rock-strewn beach on both sides; and which appears to the navigator like two white ribbons bordering the River's surface. This condition begins at Redgrave Cañon and continues to Celilo Falls; broken only by infrequent sandbars, or encañoned of cliff-lined sections. The Columbia is a fighting river and from the head of

Redgrave Cañon to tidewater at the Lower Cascades, has, almost everywhere, carved for itself a channel in the hard rock of its bed. High, grassy, tree-lined banks, usually found on other large rivers, are almost non-existent on the Columbia, and as a consequence favorable camping-places are few.

What is more marked about the Columbia than anything else is its diversified character. I know of no other river that has such varied attractions, each with its peculiar charm.

Without taking into consideration what man has done to add to the development, life, and animation of the River and its valley, let us glance at what Nature presents that is wonderful and interesting: The mountain-locked, integral lakes smooth as a mirror, or wind-lashed into fury; the rugged, towering, snow-clad mountains with their glacier-filled gulches; the lagoons, sloughs, and lakelets; the great, tributary rivers and valleys; the glacier and snow-fed mountain streams; the high benches and higher plateaus; the terraces, sculptured rocks, frowning cliffs and promontories; the great, bare, rock islands, and others less striking; the marshy flats and tide-lands; the sentinel peaks of the Cascade Mountains; the great forested areas, and the fertile and arid lands; the ancient lake beds; the cleft basalt barriers; the rapids with their rock-strewn channels, tossing, roaring breakers, and counter-currents and whirlpools; the tumbling cascades and dalles, and leaping waterfalls; and the broad, majestic, tidal termination of the River as it expires into the embrace of the sea.

It would take volumes to describe more in detail than I have done, everything of interest from the River's feeble birth at Canal Flat to its ship-plowed expanse at its termination. Engrossed as I was in navigating my boat amongst breakers, whirlpools, and maelstroms, contending with wind and weather with no one to relieve me of either strain or labor, my observations were to some extent limited; but as I am a trained observer, I visualized all the salient features as they were passed, and I find that I have been more thorough in detail than the other writers on the Columbia River who have preceded me; and I trust that the readers who have followed me closely will grasp, in a fair measure, the variety and charm that exist on the Columbia.

To produce a more complete description than mine it would be necessary for a trained observer and writer to make a complete rowboat journey, as I did, but assisted throughout by someone to do the navigating, leaving the leader free to make observations, and take notes and photographs. A second trip with its freedom, enjoyment, and even danger, is appealing to me. The trip I made was with scant knowledge of what I was to see and contend with until I met it—although some of the information given me was helpful. As I now know the River in detail and all the problems to be met, a much more satisfactory second trip could be made. While it could not be done with more safety than the first, much time could be saved, formerly spent in sizing up the rapids, and the approach to places of particular interest would be known and prepared for.

Vividly written stories of disasters in rapids, such as collisions with rocks, upsetting of boats, and the swimming or drowning of navigators have a thrilling effect upon the ignorant or non-thinking reader but do not appeal to the sober-minded and experienced. The successful and appreciated whitewaterman is he who escapes disaster and not he who runs into it. However, I claim no particular credit for the successful outcome of my journey down the Columbia other than this: I had a good boat, some ability in the handling of her, some experience with rough water, and, above all, prudence in examining the rapids before running them and in selecting my route through them. I know of a half-dozen rivermen on the Columbia who can, at any time, do as well as I did.

Some of my readers may be interested in knowing more of what I did in the way of fishing and hunting than has been told.

I had so little success fishing at Blackwater Lake, and none at all at Bush and Kinbasket Lakes that I made up my mind that it was an "off" year for fishing (as it proved to be) and made little further effort to catch fish except to trail out, occasionally, a troll line from my boat—but without success, as trolling should be done against the current, and not with it. At St. Leon there was said to be good trout fishing six miles away on Halfway Creek, but the injury I received at St Leon prevented me from taking advantage of the information. Thereafter I did not happen to encamp in the vicinity of fishing streams. Some I passed not caring to break the day's run for the uncertain purpose of trying them. At The Dalles City there is a reputed fishing place, in the Columbia, just off a point below the city. I spent several hours in a vain attempt to hook something at the point. After reaching Celilo Falls I confidently expected to spear or shoot salmon—something I had done in the past in Alaska and Western British Columbia—but, as already stated, the salmon run was over and fresh salmon was not fated to be an article of my diet on the trip. The day I was delayed at Lake River, below Vancouver, was partly passed in fishing on Lewis River for dolly-varden (a trout I had caught by the hundreds in Alaska). Using salmon eggs as bait, the only thing I caught was a small pike, almost too bony to eat. This ended my efforts at fishing.

As far as killing game was concerned, I did better, but did no regular hunting. The only wild animals I saw were the little brown bear on the Blackwater trail, a few coyotes, and jackrabbits, none of which I shot. Big game is plentiful along the upper Columbia, especially in British Columbia. There are grizzly, silver-tip, black, and brown bears, mountain goats, caribou and, in places, moose and bighorn, but they are seldom seen near the River and one must know their haunts to get them. There are caribou in the Selkirks five miles from the Ferry and I had planned a hunting trip to their feeding grounds at timber line; but the continuous rains at the Ferry, and consequent wet brush, made traveling in the forest so uncomfortable that the plan was abandoned. Grouse are plentiful in the pine forests, and of these I got ten in all, but after leaving the Ferry, although I saw several as I traveled, none were within gunshot, and I did not land to hunt them. As the autumn advanced, ducks abounded in the River, and I killed a dozen, shooting them from the boat as they came within range. In some places they were in great flocks, and had I taken the time to hunt them from the shore I could easily have obtained more than I did. Those I got, however, afforded me several appetizing and nourishing stews. Geese also became numerous in the lower River, until the Deschutes River was reached—after that there were none. The geese were more alert than the ducks and would not allow me to get within shooting range with either shotgun or rifle. In the past I had killed geese with a rifle, both sitting and on the wing, but the Columbia River geese were too wary to allow a rowboat to approach nearer than a quarter-mile and although I tried several long range wing shots at them with the carbine, none of the bullets found a mark.

On my arrival at Astoria, the morning paper gave my journey down the Columbia an extended write-up with the glaring headline, "FLOATS DOWN GREAT RIVER." I presume that the author of the head-line thought that because the Columbia has a current, all one has to do to navigate down the stream is to sit lazily in his boat and with occasional use of the oars or paddle the current will *float* the craft to Astoria. Nothing is farther from the truth. While it is a fact that much of the Columbia has a current, very swift in places, yet a great deal of it

—*Photo. by Cann*

THE VOYAGER EQUIPPED TO DEFY THE RAIN AND THE MUD OF THE TIDE FLATS has barely perceptible movement; there is "backwater" which flows up stream, and there are 153 miles of currentless lakes. Also, the frequent headwinds more than offset the current, and make progress on the lakes slow and strenuous. Except for about nine miles of portaging and lining, the six miles the "Columbia" floated alone from Hunters, and an occasional cessation of rowing to look at a map, shoot a duck, or some other temporary purpose, not even in the swiftest current, or when sailing, did I cease my efforts at the oars. At no time did I float except as stated. Even in the rapids the oars had to be constantly manipulated, either in backing water, or pulling away, quartering, from obstructing rocks and dangerous breakers, or holding the boat true with the waves. The current, of course, adds to the speed with which a boat descends a river, but the length of the Columbia, approximately 1,264 miles, was mainly covered by my own exertions, and my arrival at Astoria was

THE END OF A LONG ROW

APPENDIX

TABLE OF DISTANCES

NAME	Miles from Canal Flat	Character of Rapids
Athalmer	34	
Golden	124	
Redgrave Cañon—Maelstrom	148	Great
Kitchen Rapids	151	Medium
Beavermouth	155	
Surprise Rapids	178	Great
Kinbasket Rapids–foot Kinbasket Lake	203	
1st section	203	Minor
2nd section	204	Great
3rd section	205	"
4th section	206	"
5th section	207	"
6th section	208	"
7th section	210	"
Cummins Creek	212	Medium
Yellow Creek	219	Great
10th section	221	"
11th section	223	Medium
12th section	224	"
13th section	225	"
14th section	226	"
15th section	227	Minor
Ferry	228	
Canoe River	232	
Potlatch Rapids	244	Minor
Gordon Rapids	265.5	Medium
Soda Creek Rapids	269.5	"
12 Mile Rapids	288	Minor
Death Rapids	289	Great
Priest Rapids, B. C.	289.5	"
18 Mile Rapids	300	Minor
Unnamed Rapids	323.5	Medium
Unnamed Rapids	325	"
Petite Dalles	326	"
Steamboat Rapids	328	Minor
Revelstoke	331	
Arrowhead	359.5	
Castlegar	480.5	
Big Tincup Rapids	481	Medium
Little Tincup Rapids	481.5	Minor
Kootenay River	482	
Kootenay Rapids	482.5	Minor
Upper Trail Rapids	501.5	"
Lower Trail Rapids	503	"
Rock Island Rapids, B. C.	505	"
Salmon River Bar	508	"
Pend d' Oreille River	511.5	
International Boundary	512	

TABLE OF DISTANCES

NAME	Miles from Boundary	Charater of Rapids
Unnamed Rapids	2	Minor
Unnamed Rapids	4	"
Bishops Rapids	11.5	"
Little Dalles	16	Great
6 Mile Rapids	30	Minor
5 Mile Rapids	31	"
Kettle Falls	41	
Grand Rapids	46	Great
Driftwood Island	53.5	
Rock Bar	67.5	Minor
Turtle Rock	77	"
Deception Rock	80	"
Rogers Bar	86.5	"
Black Rapids	91	"
Unnamed Rapids	96	"
Spokane Rapids	106	Great
Spokane River	107	
Middle Rapids	109	Minor
Hawk Creek	111.5	
French Rapids	114	Minor
Hell Gate	126.5	Great
Brickleys Rapids	156.5	Medium
Equilibrium Rapids	159	"
Mahkin Rapids	170	Great
Unnamed Rapids	171.5	Minor
Parsons Rapids	174	"
Unnamed Rapids	175	"
Unnamed Rapids	176	"
Long, or Whitecap Rapids	180.5	Great
Box Cañon	181.5	"
Eagle Rapids	184.5	Minor
Unnamed Rapids	186	"
Unnamed Rapids	188	"
Unnamed Rapids	191	"
Foster Creek Rapids	193	Great
Okanagan River	203	
Methow Rapids	212.5	Minor
Chelan River	229	
Downing Rapids	230.5	Minor
Unnamed Rapids	234.5	"
Unnamed Rapids	236.5	"
Entiat Rapids	254	"
Wenatchee River	268	
Wenatchee Rapids	268.5	Minor
Unnamed Rapids	269.5	"
Wenatchee	271	
Rocky Island Rapids	275.5	Minor
Rock Island Rapids, U. S. A.	283	Great

TABLE OF DISTANCES

NAME	Miles from Boundary	Character of Rapids
Unnamed Rapids	285.5	Minor
Cabinet Rapids	288.5	Great
Gualquil Rapids	305	Minor
Island Rapids	315	"
Priest Rapids, U. S. A.		
1st section	331	Minor
2nd section	332	Great
3rd section	335	Medium
4th section	336	"
5th section	340	"
6th section	341	Great
7th section	342.5	Minor
Coyote Rapids	356	"
Yakima River	407	
Pasco	413	
Snake River	416	
Walla Walla River	427	
Bull Run Rapids	432	Minor
Umatilla Rapids		
1st section	446.5	Medium
2nd section	447.2	Minor
3rd section	448	"
Umatilla	450	
Devil's Run Rapids	453	Minor
Canoe Encampment Rapids	473	"
Owyhee Rapids	498	"
Blalock Rapids	503.5	"
Four o'clock Rapids	506	"
Rock Creek Rapids	510.5	"
Squally Hook Rapids	515.5	"
Indian Rapids	518	"
John Day Rapids		
1st section	520.2	"
2nd section	521.2	"
3rd section	522	"
Schofield Rapids	524	"
Hell's Gate	529	"
Deschutes River	530	
Celilo Falls	536	
The Dalles City	548	
Hood River	569	
Upper Cascades	587	Great
Middle Cascades	590	Minor
Lower Cascades	592	"
Vancouver	638	
Willamette River	643	
Astoria	742	
Mouth of Columbia River	752	

TABLE OF DISTANCES

The foregoing table of distances makes the length of the Columbia River to be 1,264 miles, of which 512 miles are in British Columbia and 752 miles are in the United States. The mileage from Castlegar, B. C., to the Pacific Ocean was mainly compiled from the reports of Lieutenant T. W. Symonds, the United States engineer, and J. P. Forde, the Canadian engineer. I found their distances, while not always exact, to be near enough for all practical purposes. The mileage between Canal Flat and Castlegar was obtained from various sources. There is much uncertainty about the actual distance around the Big Bend, B. C. Two distances were furnished me, 153 miles and 200 miles. The former, I believe, is based upon a railroad survey which is shorter than the River; while the latter is the estimate of the fire-wardens and trappers who travel the section frequently. I have used an intermediate distance of 176 miles, obtained partly by scaling maps, and partly as the result of my own experience. There has never been an exact determination of the length of the River in British Columbia; and in the United States the length I used is disputed by the state engineer of Washington, who claims that 756 miles instead of 752 is correct. I have no doubt but that he is right, but as there was no way of apportioning the four extra miles between the various places and rapids I did not apply the increase. I believe that if an exact survey would be made following all the meanderings of the main channel of the Columbia, its length would be found to be something in excess of the 1,264 miles I have computed.

It will be noted that in the table the rapids are divided into three classes. The Great Rapids are those that are very violent, and, except in some instances where their peculiar construction makes possible the avoidance of their more dangerous features, are generally unsafe to run, in which case they must be negotiated either by lining or portaging. The Medium Rapids are less violent than the great ones and can be safely run by exercising caution and skill. The Minor Rapids are either mere riffles or have no dangerous features.

It will also be noted that some of the minor rapids are unnamed. Many of these doubtless have local names, but if so, I was unable to ascertain them.

NEWSPAPER WRITEUPS

The navigation of the Columbia River by a lone man in a rowboat aroused much interest, and as the different towns on the River were reached the trip was featured in the local newspapers. Interior towns copied the writeups—some even as far east as the middle west. The metropolitan cities of the Pacific Coast, Los Angeles, San Francisco, Portland, and Seattle gave the trip some space. Below are given four entirely unsolicited newspaper articles. The others are too numerous to print, but they are practically the same in substance as those given.

GOLDEN STAR, June 21, 1921—

(Special to The Golden Star.)

INVERMERE, B. C., June 21.—Last week there arrived here on his way around the Big Bend of the Columbia river, M. J. Lorraine, a locating engineer, who had come all the way from Alhambra, California, for the sole purpose of the hazardous trip of the Columbia river from its source in the Windermere district, to its mouth at Astoria, Oregon, a distance of some fourteen hundred miles all told. He will make the trip alone in his seventeen-foot dory. This he built at Canal Flat, the very head of the Columbia river, and out of a log of wood carved himself out his oars. The boat has an extreme length of seventeen feet with a keel width of some thirty-six inches and flares up to a width of about four feet at the wide part on the gunwales. It has a carrying capacity of about one ton weight and when loaded will draw at its deepest seven inches of water. She bears the name "Columbia."

The first leg of the journey was from Canal Flats across the lakes to this part where a stop of several days was made to lay in supplies. From Athalmer the official start was made on Sunday morning and will be continued leisurely until Golden, some one hundred miles distant, is reached. It is after passing Golden that the perils of the trip come in, for there is a succession of wild and dangerous rapids of varying lengths the way through until long after the Big Bend is passed and the river winds on south to Revelstoke.

Mr. Lorraine intends taking the trip leisurely and has allowed himself six months to cover the fourteen hundred miles. He will prospect for minerals along the way. He is an experienced voyager, having run the swift waters of Alaska rivers in small crafts.

PASADENA POST, Nov. 29, 1921—

Bearing the distinction of being the first and only man to travel the entire length of the Columbia river in a boat, M. J. Lorraine arrived in Alhambra a few days ago, looking in the best of rugged health, despite his 68 years and his long, perilous trip. Mr. Lorraine is the guest of his son, City Manager Grant M. Lorraine, and expects to make his permanent residence here.

Mr. Lorraine has already started the arrangement of data concerning his experience, which will be compiled in book form, making use of many interesting photographs which he took during the voyage down the river from its source to its mouth, from an engineer's point of view. He has much valuable information relating to the character of the country through which he passed, and its agricultural, horticultural and mineral resources.

Mr. Lorraine, who is a member of the American Society of Civil Engineers, and well known on the coast in engineering circles, is the first man to cover the entire distance of the river, and there have been few who have traveled even a part of the course. The start was made at Canal Flat, B. C., on June 13, ninety miles north of the international boundary. He reached the mouth of the river at Astoria, Ore., on November 9. A total of 107 rapids were shot, 35 in Canada and 72 in the United States. His boat, the "Columbia," was built by himself and designed especially for shooting rapids. It is a dory type, 17 feet long, and with a 4½-foot beam. Upon his arrival at Astoria the boat was purchased by the city and is to be placed in the city park as a permanent memento of the journey.

Approximately 1,400 miles were covered by Mr. Lorraine on the trip, and he suffered no mishap nor accident of any kind, a fact which is considered remarkable, as the river in many places is extremely dangerous and scores of people have lost their lives in its treacherous rapids.

CALGARY HERALD, Dec. 27, 1921—

(Special to The Herald.)

INVERMERE, B. C., Dec. 24.—With the Windermere district as a centre, many books have been published in the last two years. Now a new source for narrative writing seems to have unfolded itself, and there has just appeared a finely illustrated volume, "Down the Columbia," by Lewis R. Freeman. Mr. Freeman gives an account of his experience with a moving picture man on a trip down the Columbia River. His trip nominally commences at Canal Flat and passes by easy stages through to Portland, Oregon. In reality much of the traveling was done overland and only the worst rapids and cataracts visited and gone through in the small skiff which carried the party and the camp equipment.

There is about to appear on the subject of this same country, that traversed by the Columbia river, a book by a really hardened voyageur. This time it will be from the pen, not so much of a polished writer, but one who knows the game of travel in the rough waters of the rivers of North America, learned from actual experience and in the most cases the trips were run by him with his lone hand to protect and guide him. The new work will be from the hands of Mr. M. J. Lorraine. Mr. Lorraine is a member of the American Society of Civil Engineers. He is a man who has roughed it a great deal and since the early eighties has spent his life in Western America largely engaged in the construction of transcontinental railways. As a hobby he has spent much of his holidaying in traveling rivers from their source to the sea, having had experience in some of the rough waters of the Unuk, for instance. Mr. Lorraine resides at Alhambra, near Pasadena, California. Mr. Freeman made the trip in the year 1920, while Mr. Lorraine's was in 1921.

With Mr. Lorraine, however, there have been no frills. He came quietly up by himself to Canal Flat, there built himself a small boat of the dory type from lumber which he purchased at Wardner. She is a craft 17 feet long and 4½-foot beam. With this and by himself, a man over sixty years of age, he started out. He had his own little camping outfit with him and relied partly on his gun and partly on what he took along with him for his daily sustenance. He left Canal Flat on the thirteenth of June, passed here a day or two after and, taking a short rest, entered the Columbia river at Athalmer and was off on his perilous, lonely journey. He reached the mouth of the Columbia river on the 9th of November of this year after a venturous journey in his small skiff of some 1,400 odd miles. This is the first authentic journey that has ever been made, according to the annals of man, by any person in one continuous journey from the source of the Columbia river to its mouth. Many a traveler has gone over parts of it and David Thompson in the year 1810 made the entire distance from the source to the mouth, only part of it he made by first going down stream and the balance by going up stream. To Mr. Lorraine is certainly due the credit of making the first continuous journey, and this by himself, over the whole surface of the Columbia river. To give some idea of what this means, it is only necessary to say that in it he shot 107 rapids, 35 in Canada and 72 in the United States. Many of these are known to travelers as being the most dangerous in river navigation on the continent of America. In these may be cited our own Surprise Rapids, the Death Rapids north of Revelstoke, and others less famous.

Upon reaching his destination the small craft in which Mr. Lorraine made his journey was purchased from him by the city of Astoria, Oregon, and now rests in the city park as a permanent remembrance of the journey.

The book which he is now writing will be fully illustrated and the narrative will be the result of daily writings made on his passage to the sea. It will be named "The Columbia Unveiled."

ASTORIA BUDGET, November 17, 1921—

FAMOUS SKIFF MAY GRACE CITY PARK

According to an announcement by Secretary William Gratke, of the Chamber of Commerce, yesterday, M. J. Lorraine, the man who made the first trip from the source of the Columbia to its mouth and who landed in Astoria recently after the hazardous trip of 1,400 miles, wants to dispose of the 17-foot craft in which he made his journey.

Mr. Gratke says that several prominent local citizens are considering purchasing the boat and having it placed in the city park as the first boat to make the trip down the entire length of the great river.